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Validation Report

Wienerberger AG

VALIDATION OF THE CDM-PROJECT:
CHINA CHANGTANGHE RUNDLE SMALL HYDRO-
POWER PROJECT

REPORT NO. 1053591

2008, August 11

TÜV SÜD Industrie Service GmbH
Carbon Management Service
Westendstr. 199 - 80686 Munich – GERMANY

| Report No. | Date of first issue | Revision No. | Date of this revision | Certificate No. |
|------------|---------------------|--------------|-----------------------|-----------------|
| 1053591 | 2007-11-21 | 3 | 2008-08-11 | - |

| | | | |
|--|--|--|--|
| Subject: Validation of a CDM Project | | | |
| Accredited TÜV SÜD Unit: TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 80686 Munich Germany | | TÜV SÜD Contract Partner: Jiangsu TUV Product Service Ltd. Guangzhou Branch 26 Floor & Unit 2703-2710, Dongbao 510600 Guangzhou China | |
| Client: Wienerberger AG Wienerbergstrasse 11 1100 Wien Austria | | Project Site(s): Located in Dongkou County, Shaoyang City, Hunan Province, P.R.China. The geographical coordinates of the individual powerhouse sites of the project are follows: First cascade: N 27°12'17" E 110°33'18" Second cascade: N 27°09'21" E 110°31'03" Third cascade: N 27°08'25" E 110°31'27" | |
| Project Title: China Changtanghe Rundle Small Hydropower Project | | | |
| Applied Methodology / Version: AMS.I.D / Version 12 ACM0002 / Version 06 | | Scope(s): 1 | |
| First PDD Version: Date of issuance: 2007-07-20 Version No.: 01 Starting Date of GSP 2007-09-15 | | Final PDD version: Date of issuance: 2008-08-05 Version No.: 04 | |
| Estimated Annual Emission Reduction: | | 39 980 tCO ₂ e | |
| Assessment Team Leader: Dr. Sven Kolmetz | | Further Assessment Team Members: Ms. Xuemei Li Mr. Liran Gu Ms. Caiyang Wu | |
| Summary of the Validation Opinion: | | | |
| <input checked="" type="checkbox"/> 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. | | | |
| <input type="checkbox"/> The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence TÜV SÜD will not recommend the project for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board on this decision. | | | |

Abbreviations

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

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1 INTRODUCTION

1.1 Objective

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

The project activity discussed by this validation report has been submitted under the project title:
China Changtanghe Rundle Small 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 Methodology (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 |
| <i>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.</i> | <i>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.</i> | <i>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</i> | <i>Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (<input checked="" type="checkbox"/>) , 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.</i> | <i>Conclusions are presented in the same manner based on the assessment of the final PDD version.</i> |

| 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 |
| <i>If the conclusions from table 1 are either a Corrective Action Request or a Clarification Request, these should be listed in this section.</i> | <i>Reference to the checklist question number in Table 1 where the Corrective Action Request or Clarification Request is explained.</i> | <i>The responses given by the client or other project participants during the communications with the validation team should be summarised in this section.</i> | <i>This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 1, under "Final PDD".</i> |

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 |
| <i>If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.</i> | <i>Identifier of the Request.</i> | <i>This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion.</i> |

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 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Ms. Xuemei Li | GHG-A | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Mr. Liran Gu | T | <input checked="" type="checkbox"/> | | |
| Ms. Caiyang Wu | T | <input checked="" type="checkbox"/> | | |

Dr. Sven Kolmetz is a physicist and ATL at the department of “Carbon Management Service” located in the head office of TÜV SÜD Industrie Service GmbH in Munich, Germany. Furthermore he is an officially authorized expert in the verification of GHG emissions in the framework of the European Emission Trading Scheme. Before joining TÜV SÜD he worked as an energy consultant for industrial companies and an instrument consultant of GHG emissions reduction for the German Federal Government.

Ms. Xuemei Li is an auditor for environmental management systems (according to ISO 14001) at TÜV SÜD China. She is based in Guangzhou. In her position she is responsible for the implementation of validation, verification and certifications audits for management systems. She has received training in the CDM validation process and participated already in several CDM project assessments.

Mr. Liran Gu is an Environmental Management Engineer (approved by Chinese government) and an auditor at the “TÜV Management Service” department, Guangzhou Branch, China. Mr. Gu got a master’s degree of Environmental Engineering from the University of Adelaide in Australia in the year 2004. Before joining TÜV SÜD, he worked as a senior auditor for environmental quality management.

Ms. Caiyang Wu is an auditor trainee at the “Carbon Management Service” department of TÜV SÜD Industrie Service GmbH in Munich, Germany. She holds a M.Sc. degree in Renewable Energy and worked as an experienced HVAC engineer before joining TÜV SÜD. She has received training in the CDM validation process and participated 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 September 28th, 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. Jinbao Li (Chairman of the board) | Dongkou Zhexiang Hydroelectric Co., Ltd. |
| Mr. Qingyou Zhang (GM Assistant) | Dongkou Zhexiang Hydroelectric Co., Ltd. |
| Ms. Junyi Yang (Project Manager) | Dongkou Zhexiang Hydroelectric Co., Ltd. |
| Mr. Feng Li (Project Officer) | Hunan CDM Project Service Center |

2.4 Resolution of Clarification and Corrective Action Requests

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

2.5 Internal Quality Control

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

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

3 SUMMARY OF FINDINGS

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

History of the validation process

A first version of the PDD was submitted to the DOE in July 2007. Based on this documentation a document review and a fact finding mission in form of an on-site audit was performed in September 2007. Afterwards the client revised the PDD according to the requests indicated during the assessment work. The final version PDD that was submitted in January 2008 serves as the basis for the final assessment presented herewith. Changes are not considered to be significant with respect to the qualification of the project as a CDM project based on the two main objectives of the CDM to achieve a reduction of anthropogenic GHG emissions by sources and to contribute to sustainable development.

Project description

The proposed project consists of three diversion type hydropower stations without reservoirs in the span of 20.6 km, which is located in the upper and middle reaches of Changtanghe River, in Dongkou County, Shaoyang city, Hunan province, P.R.China. The installed capacity is 10.5 MW in sum, the net power generation is 41,024 MWh, which will be delivered into Central China Power Grid (CCPG). Since CCPG is dominated by fossil-fuel power plants, the proposed project can indirectly cause Greenhouse Gas emission reductions through substituting the fossil-fuel fired power generation, and the annual emission reductions is estimated to be 39,980 tCO₂e.

Findings

In total the assessment team expressed 2 Clarification Request and 14 Corrective Action Requests.

Date format has been corrected (CAR1). GPS data application has been clarified (CAR2). Some mistakes have been revised (CAR3, 9 - 11). The IRR calculation sheet has been adjusted (CAR4, 5). Relative parameters have been specified in the latest PDD (CAR 6 - 8). Other missing information has been stated as well (CAR 12 - 14).

As stated above, the respective CARs and CR have been resolved accordingly. Considering these findings in previous PDD versions have been revised and the latest PDD is in compliance with the CDM requirements.

Baseline calculation

The calculation of the baseline emissions followed the procedures described in the methodology ACM0002 Version 06. The Central China Power Grid is considered to be the project boundary.

The operating margin emission factor (EF_{OM}) was determined based on the simple OM method. The ex-ante option was chosen for this calculation. The calculation of the build margin emission factor (EF_{BM}) was based on modified methods agreed by the EB, because plant specific data are not available in China. The emission factor of the thermal power plants was 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 exceeded 20% in the last years, for which data was available, was finally assessed with this factor.

The baseline calculation was based on the published OM/BM calculation process issued by the NDRC (China DNA). The values for the EF_{OM} and EF_{BM} were similar compared to the values published by the Chinese DNA and are therefore accepted for the calculation of the baseline emissions and the emission reductions.

The value for the combined margin emission factor (EF_{CM}) was determined by the weighted average of the EF_{BM} and EF_{OM} . Default values for the factors (i.e. 0.5 for both with hydro plants) are applied in the methodology. As per the methodology, the project does not need to consider leakage or project emissions. As a result, the annual emission reductions equal the annual baseline emissions.

In summary, the calculation of the baseline emissions and the emission reductions, respectively, can be considered as correct.

Additionality

The additionality of the project was checked carefully. In doing so the assessment team has put the main focus on the following issues.

The assessment team has reviewed the proof for the early consideration of the project. The Preliminary Design Report (PDR) was generated on December 2004. Although the project IRR is below 10% benchmark, the PDR was approved by Development and Planning Bureau of Dongkou County on 25th May 2004 since the government concerned social-economical benefits brought by the project were significant to local community. This was evidenced by the social-economical rate of return, which was higher than 12% benchmark. Then the project developer started searching support by CDM revenue. The consideration of CDM is evidenced by Board Meeting Minutes of Dongkou Zhexiang Hydroelectric Co. Ltd., dated on 16th February 2005, where it is clearly mentioned the intent of CDM consideration. Letter of Intent for Loan from Construction Bank of China was issued on 10th March 2005. This intent letter was based on the CDM consideration. The negotiation with the consultant company was completed in January 2006 and Letter of Intent for project developing was signed between Dongkou Zhexiang Hydroelectric Co., Ltd. and Hunan CDM Service Center. The starting date of the project activity was 2nd March 2006, on which the Contract of Purchase and Sale of Machines was signed. In June 2006, the consultant company held a signature ceremony and the project owner of Changtanghe got the chance to sign a Trade Agreement with Arreon Carbon UK. In October 2006, the draft PDD was prepared and submitted to NDRC for approval. Due to PDD quality, the first trial for Host DNA approval was failed. In April 2007, Arreon Carbon negotiated with the consultant company and the project owner to abort the intention agreement. Meanwhile, Atmoguard GmbH was authorized as a broker for the project. In July 2007, Atmoguard GmbH introduced Wienerberger AG as a project participant. TÜV SÜD is appointed as DOE for the project in August 2007. Thus the assessment team concluded CDM was seriously considered.

Additionality is demonstrated by applying the investment analysis (benchmark analysis) to show that there is an investment barrier for the project without the CDM revenues.

The PDD describes in detail that the proposed project is not financially attractive without CER revenues. The assessment team has checked all sources of the IRR calculation. The key parameters are calculated or come mainly from PDR. These data have been compared with the specific data of 240 hydro power projects in China (registered or under validation). The specific investment costs are below the average in statistics and can be considered as conservative. The specific operational costs is slightly higher than the average but still within the deviation. The project did not start operating, therefore it is impossible to cross-check the expected investment and operational costs with the real value. The on-grid tariff was 0.23 RMB/kWh in PDR. This figure is compared with the tariff from *Notice of Adjusting the on-grid tariff of Small Hydropower Station* by Dongkou County Department of Development and Reform on 25th May 2007, in which the on-grid tariff was set as 0.23 RMB/kWh for newly constructed small scale hydropower plant with installed capacity above 6 MW. The operational hours are calculated as 4884 hours annually, which is deemed to be reasonable. Thus all data in IRR calculation can be considered plausible.

Further the calculation spreadsheet and the source of the benchmark were checked. The benchmark of 10 % is evidenced by the "Economic evaluation code for small hydropower projects (SL 16-

95) issued by Ministry of Water Resources in 1995". The evidence for the benchmark and the IRR calculation will be uploaded together with the PDD. The IRR in the PDR is lower than in the PDD. Thus it is considered conservative and plausible.

A sensitivity analysis is performed, by taking into account 10% variations in electricity tariff, net power output and annual O&M cost. Variations of those parameters deem to be reasonable. It can be stated that under none of the assumed variation of variables the benchmark of 10 % is met. The 10% range is based on the Chinese regulation for feasibility study reports and *Economic Evaluation Code for Small Hydropower Projects (SL16-95)*. It can be considered reasonable for the investment and operational costs as these values are moving up due to increases of wages and raw material costs in hydropower plants. The probability to exceed 10% range for electricity generation is very low since the operational hours adopted in IRR calculation are taken with peak margin. It may be concluded that the project is financially unattractive without CER revenues.

The CDM helps alleviate the economic and financial hurdles faced by the project. CDM revenues will help to mitigate the project's financial unattractiveness by providing additional cash flow and improving the IRR.

To conclude the additionality assessment, it may be stated that the proposed project activity is without doubt additional.

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=3718&Ebene1_ID=26&Ebene2_ID=1123&mode=1 | |
| Starting date of the global stakeholder consultation process: 2007-09-15 | |
| Comment submitted by: none | Issues raised: - |
| Response by TÜV SÜD: - | |

5 VALIDATION OPINION

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

China Changtanghe Rundle Small Hydropower Project.

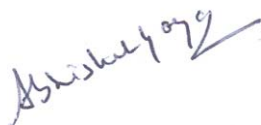
The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project 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, 2008-08-11

Munich, 2008-08-11



Certification Body "climate and energy"
TÜV SÜD Industrie Service GmbH

Assessment Team Leader

Validation of the CDM Project:

China Changtanghe Rundle Small Hydropower Project



Industrie Service

Annex 1: Validation Protocol

Validation Protocol

Project Title: China Changtanghe Rundle Small Hydropower Project

Date of Completion: 11 August 2008

Number of Pages: 40



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| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|-----------------------|---|-------------------------------------|-------------------------------------|
| A. General description of small-scale project activity | | | | |
| A.1. Title of the small-scale 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. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.1.2. Are there any indication concerning the revision number and the date of the revision? | 1, 2 | The available GSP PDD is indicated as 1 st version dated: July 20th, 2007. <u>Corrective Action Request No.1.</u> The completing date should be written into DD/MM/YYYY. | CAR1 | <input checked="" type="checkbox"/> |
| A.1.3. Is this consistent with the time line of the project's history? | 1, 2 | The GSP has been started with the first version. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.2. Description of the small-scale project activity | | | | |
| A.2.1. Is the description delivering a transparent overview of the project activities? | 1, 6, 7, 8, 9, 10, 11 | An overview of the project is described as transparently in Section A.2. of the PDD. According to the reservoirs and the designed project, the installed capacity is 10.5 MW in sum, the estimated annual electricity generated would be 51,280MWh and the electricity delivered to the grids would be 41,024MWh. The EIA of the proposed project was approved by Dongkou Environmental Protection Bureau on 30 th April, 2005. The project was approved by the Development and Planning Bureau on 25 th May, 2004. The project construction has been started on 28 th June, 2006 and the expected completion date of the first unit is Mar., 2008. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.2.2. What proofs are available demonstrating that the project description is in compliance with the actual situation or planning? | 1, 2, 5, 6, 7, 8, 17 | During the on-site audit numerous proofs for the described assumptions were evidenced. They are summarized in the reference list, Annex 2 to this report. The planning is described in the feasibility study. The following | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Validation Protocol

Project Title: China Changtanghe Rundle Small Hydropower Project

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| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|--|------------------|---|-------------------------------------|-------------------------------------|
| | | data deliver evidences for the actual situation of the project activity: - Initial Design Report - Project approval - EIA and the approval of EIA -Permission to sell generated electricity to the Central China Power Grid (Approval for connection to Hunan Grid) | | |
| A.2.3. Is the information provided by these proofs consistent with the information provided by the PDD? | 1, 2, 5, 6, 7, 8 | The required data delivered in the PDD are consistent with the information from the proofs. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.2.5. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas balance? | 1, 2, 5, 6 | The project activity consists of the displacement of electricity generated by coal fired power plants through electricity generated by hydro power. The project is therefore expected to reduce emissions of greenhouse gases by an estimated 40,000 tCO ₂ e per year during the first crediting period. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.2.6. Is the brief explanation how the project will reduce greenhouse gas emission transparent and suitable? | 1, 2 | Yes, the brief explanation is transparent and suitable. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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. In Table A.1 and Annex 1 the two parties involved in the project are mentioned: Dongkou Zhexiang hydroelectric Co. Ltd and Wienerberger AG. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.3.2. Is the participation of the listed entities or Parties confirmed by each one of them? | 1, 2 | Open issue Pls. deliver the LoAs issued by China and UK together with MoC | Open Issue | <input checked="" type="checkbox"/> |

Validation Protocol

Project Title: China Changtanghe Rundle Small Hydropower Project

Date of Completion: 11 August 2008

Number of Pages: 40



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| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|----------------|--|-------------------------------------|-------------------------------------|
| | | to DOE before raising the request of registration. | | |
| 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 | Information provided on project participants in A.3. is consistent with that in annex 1. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4. Technical description of the small-scale project activity | | | | |
| <i>A.4.1. Location of the small-scale project activity</i> | | | | |
| 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, 5, 6 | <p>The project is located at Changtang River, Dongkou County, Shaoyang City, Hunan Province, P. R. China. The project location is described in the PDD, the geographical coordinates of the project site are longitude of 108°40' and north latitude of 27°03'.</p> <p><u>Corrective Action Request No.2.</u></p> <ul style="list-style-type: none"> To increase transparency, please clearly describe the GPS data including seconds. Please clearly describe the GPS data for the dams and the powerhouse of the three stations separately. There is a blank bubble in the map. Please revise. | CAR2 | <input checked="" type="checkbox"/> |
| 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, 8, 17 | <p>A number of documents give evidence that the project proponents can implement the project at the given site (refer also to Annex 2):</p> <ul style="list-style-type: none"> The approval of EIA. Approval of Report for Changtanghe Rundle Small Hydropower Project issued by Development and Planning Bureau of Dongkou County The Approval for connection to Dongkou Grid. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <i>A.4.2. Type and category(ies) and technology/measure of the small-scale project activity</i> | | | | |

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| A.4.2.1. To which type(s) does the project activity belong to? Is the type correctly identified and indicated? | 1, 2 | Yes, the project falls under scope 1 (Energy industries (renewable/non-renewable sources) as it deals with energy generation. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.2.2. To which category (ies) does the project activity belong to? Is the category correctly identified and indicated? | 1, 2 | Yes, the project falls under category I.D.: Grid Connected Renewable Energy Generation. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.2.3. Does the technical design of the project activity reflect current good practices? | 1, 2 | The domestically sourced project design is standard hydropower technology and hence reflects the current good practices to use renewable resources to generate electricity. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.2.4. Does the implementation of the project activity require any technology transfer from Annex-I countries to the host country (ies)? | 1, 2, 5, 6, 19 | No, it does not. There is no technology transfer from annex-I countries to China. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.2.5. Is the technology implemented by the project activity environmentally safe? | 1, 2, 7, 8 | The implemented project activity (hydro power plant) is environmentally safe. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.2.6. Is the information provided in compliance with actual situation or planning? | 1, 2 | Yes, it is in compliance as validated on-site on 28 th Sep., 2007. Please see A.2.2. <u>Corrective Action Request No.3.</u> The starting date of Shuangjiangqiao power plant is different from the actual date. Please correct it in the revised PDD in C.1 as well as A.2. The operational time of Shuanglongqiao power plant is 4368h in the initial design report different from the one in the table 2 of the PDD. Please correct it. | CAR3 | <input checked="" type="checkbox"/> |
| A.4.2.7. 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 | 1, 2 | The common practice for electricity generation is still coal-fired power plant. Hence, the project activity definitely would result in a better performance than the common practice. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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| host country? | | | | |
| A.4.2.8. Is the project technology likely to be substituted by other or more efficient technologies within the project period? | 1, 2 | It is not expected that there will be a substitution because the turbines, generators and the other equipment will be newly commissioned and installed. The expected life time of the project is under normal circumstances longer than the crediting period. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.2.9. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period? | 1, 2 | To guarantee safe operation during the life time, the operators are sent for training to other similar existing power plants, to acquire the knowledge on maintenance and operation. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.2.10. Is information available on the demand and requirements for training and maintenance? | 1, 2 | As confirmed on-site, the first unit generator is expected to generate electricity in Mar. 2008. There is no detailed information available yet on training requirements. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.2.11. Is a schedule available for the implementation of the project and are there any risks for delays? | 1, 2 | The Preliminary Design Report of Changtanghe Rundle Small Hydropower Project goes along with the time schedule as presented by the project owner on-site. Mr. Li Jinbao, Chairman of the board, Dongkou Zhexiang Hydroelectric Co., Ltd. reports that he not expects any delays; | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.3. Estimated amount of emission reductions over the chosen crediting period | | | | |
| A.4.3.1. Is the form required for the indication of projected emission reductions correctly applied? | 1, 2 | The project emission reductions are shown in chapter A.4.3 according to the guidelines. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.3.2. Are the figures provided consistent with other data presented in the PDD? | 1, 2 | The yearly emission reduction is estimated to be 40,000 tCO ₂ which is the result of emission factor of the grid times the annual electricity fed to the grid. The same figure is quoted throughout the entire PDD. | CAR4 | <input checked="" type="checkbox"/> |

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| | | <p><u>Corrective Action Request No.4.</u></p> <p>However, emission reductions may have to be revised due to the change of the operation time of Shuanglongqiao power plant (See and a possible updating of the emissions factor, which however is not obligatory as the old used EF data are more conservative than the new data (see B.6.1.2.). In case, the new data are used, project participants are requested to refer to NDRC emission factors issued on August 9th, 2007".</p> <p>The total estimated emission reduction above Table 3 is different from 270,475 dated in Table 3.</p> | | |
| A.4.3.3. Are the figures consistent with the small-scale criteria for the used Type? | 1, 2 | The installed capacity of the newly built project units will be 15 MW which is consistent with the small-scale criteria. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.4. Public funding of the small-scale project activity | | | | |
| A.4.4.1. Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants? | 1, 2, 5, 10 | According to the statement in A.4.4. of the PDD there is no public funding for the project activity. By reviewing the financial discussion of the FSR, it became evident that no public funds are used by the project. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.4.2. Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)? | 1, 2 | Yes, the information on public funding is consistent with the information provided in Annex 2 where is also mentioned that no public funding takes place. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| A.4.5. Confirmation that the small-scale project activity is not a debundled component of a large scale project activity | | | | |

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| A.4.5.1. Is there a registered small-scale CDM project activity or an application to register another small-scale CDM project activity: with the following characteristics: | 1, 2 | <table><tr><td>Debundling checklist</td><td>Yes / No</td></tr><tr><td>the same project participants?</td><td>No</td></tr><tr><td>In the same project category and technology/measure?</td><td>No</td></tr><tr><td>Registered within previous two years? Or in registration process?</td><td>No</td></tr><tr><td>Whose boundary is within 1 km of the project boundary of the small scale project activity under consideration?</td><td>No</td></tr></table> | | Debundling checklist | Yes / No | the same project participants? | No | In the same project category and technology/measure? | No | Registered within previous two years? Or in registration process? | No | Whose boundary is within 1 km of the project boundary of the small scale project activity under consideration? | No | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Debundling checklist | Yes / No | | | | | | | | | | | | | | |
| the same project participants? | No | | | | | | | | | | | | | | |
| In the same project category and technology/measure? | No | | | | | | | | | | | | | | |
| Registered within previous two years? Or in registration process? | No | | | | | | | | | | | | | | |
| Whose boundary is within 1 km of the project boundary of the small scale project activity under consideration? | No | | | | | | | | | | | | | | |
| A.4.5.2. If the answer to all the above question is ‘Yes’ then does the total size of the small scale project activity combined with previously registered small scale CDM project activity exceeds the limits of small scale CDM project activities? | 1, 2 | N.A. | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | |
| B. Application of a baseline and monitoring methodology | | | | | | | | | | | | | | | |
| B.1. Title and reference of the approved baseline and monitoring methodology applied to the small-scale project activity | | | | | | | | | | | | | | | |
| B.1.1.1.Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated? | 1, 2 | Yes, as clearly indicated the applied methodology is the simplified baseline and monitoring methodology AMS I.D., version 12 referring to ACM0002, vers. 6. | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | |
| B.1.1.2.Is the applied version the most recent one and / or is this version still applicable? | 1, 2 | Yes, the applied version 12 of the methodology AMS I.D. has been the most recent one at the time when the GSP was started, lasting from 15 Sep. 07 - 14 Oct. 07. | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | |
| B.2. Justification of the choice of the project category | | | | | | | | | | | | | | | |
| B.2.1. Is the applied methodology considered the | 1, 2 | The project activity fulfils the criteria of AMS I.D.: | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | |

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| most appropriate one? | | <ul style="list-style-type: none"> • The project activity is a renewable electricity project (hydroelectric) • The added capacity of the project does not exceed the limit of 15 MW (Decision -/CMP2 paragraph 28 (a): • The electricity generated is supplied to a grid, that is or would have been supplied by at least one fossil fuel fired generating unit (the Central China Power Grid). <p>Thus, the baseline methodology deems to be the most applicable for this project among the existing approved baseline methodologies.</p> | | | | | | | | | | |
| B.2.1.1. Criterion 1: This category comprises renewable energy generation units, such as photovoltaics, hydro, tidal/wave, wind, geothermal and renewable biomass, that supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit. | 1, 2 | <table border="1"> <tr> <th>Applicability checklist</th> <th>Yes / No / NA</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>Compliance verified?</td> <td>Yes</td> </tr> </table> | Applicability checklist | Yes / No / NA | Criterion discussed in the PDD? | Yes | Compliance provable? | Yes | Compliance verified? | Yes | ☑ | ☑ |
| Applicability checklist | Yes / No / NA | | | | | | | | | | | |
| Criterion discussed in the PDD? | Yes | | | | | | | | | | | |
| Compliance provable? | Yes | | | | | | | | | | | |
| Compliance verified? | Yes | | | | | | | | | | | |
| B.2.1.2. Criterion 2: If the unit added has both renewable and non-renewable components (e.g.. a wind/diesel unit), the eligibility limit of 15MW for a small-scale CDM project activity applies only to the renewable component. If the unit added | 1, 2 | NA | ☑ | ☑ | | | | | | | | |

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| co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15MW. | | | | |
| B.2.1.3. Criterion 3: Combined heat and power (co-generation) systems that supply electricity to and/or displace electricity from a grid are not included in this category. | 1, 2 | NA | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.2.1.4. Criterion 4: In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units. | 1, 2 | NA | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.2.1.5. Criterion 5: Project activities that seek to retrofit or modify an existing facility for renewable energy generation are included in this category. To qualify as a small scale project, the total output of the modified or retrofitted unit shall not exceed the limit of 15 MW. | 1, 2 | NA | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.2.1.6. If the project is under a programme of activities, have all the applicability criteria and additional requirements been considered according to the methodology? | 1, 2 | Not applicable as the project activity is not under a programme of activities. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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| B.3. Description of the project boundary | | | | |
| B.3.1. Does the project boundary include physical, geographical site where the project activity takes place? | 1, 2 | The baseline includes the emissions related to the electricity produced by the facilities and power plants to be displaced by the Changtanghe Rundle Small Hydropower Project. This involves emissions from displaced fossil fuel use at power plants connected to the Central China Power Grid. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.3.2. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by / indication included to the PDD? | 1, 2 | Yes, the spatial and technological boundaries have been verified on-site. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.4. Description of baseline and its development | | | | |
| B.4.1. Have all technically feasible baseline scenario alternatives to the project activity been identified and discussed by the PDD? Why can this list be considered as being complete? | 1, 2 | Yes, three realistic and credible alternatives to the project activity are considered to investigate the baseline: <ul style="list-style-type: none"> • The project without CDM • Fossil fuel fired power plant • Grid electricity | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.4.2. Does the project identify correctly and excludes those options not in line with regulatory or legal requirements? | 1, 2 | Yes, the PDD states that, according to "the announcement which strictly forbids the construction of thermal power stations with an installed capacity lower than 135 MW published by the State Council Office, Guo Ban Fa Ming Dian [2002] No.6" conventional coal-fired power plants are consistent with regulations although the construction of small-scale power plants with a capacity under 135 MW has been prohibited. The document could be checked and the statement be verified on-site. A thermal power plant with equivalent annual power generation is not in compliance with Chinese relevant laws and regulation. The first and the second alternatives are in compliance with Chinese relevant laws and regula- | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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| | | | tions. | | |
| B.4.3. | Have applicable regulatory or legal requirements been identified? | 1, 2 | Yes, the applicable regulatory and legal requirements have been identified in the PDD. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.4.4. | Does the PDD identify the most likely baseline scenario in absence of the project activity? | 1, 2 | Alternative 3 "Continuation of the current situation, i.e. electricity will continue to be generated by the existing generation mix operating in the grid" is the most likely baseline scenario in absence of the project activity. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.4.5. | Is this identification supported by official and/or verifiable documents (e.g. studies, web pages, certificates, etc)? | 1, 2 | Yes, it is supported by the document published by the State Council Office. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.4.6. | Is the identified baseline scenario in line with regulatory or legal requirements? | 1, 2 | Yes, the identified baseline scenario is in line with regulatory and legal requirements. Please see B.4.2 of the protocol. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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 small-scale CDM project activity: | | | | | |
| If the additionality tool has been used please answer B.5.1 to B.5.13 | | | | | |
| B.5.1. | Has CDM been considered before the starting date of the project activity? What kinds of evidences are available? | 1, 2, 14, 23 | B.5.1. to B.5.13 are not applicable as the additionality tool has not been used. It has been applied Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.5.2. | In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)? | 1, 2 | N/A | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.5.3. | In case of Option I (simple cost analysis): Is it demonstrated that the activity produc- | 1, 2 | N/A | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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| es no economic benefits other than CDM income? | | | | | |
| B.5.4. | 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 | N/A | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.5.5. | 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 | N/A | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.5.6. | 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 | N/A | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.5.7. | 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 | N/A | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.5.8. | 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 | N/A | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.5.9. | In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and significance of these barriers? | 1, 2 | NA. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.5.10. | In case of applying step 3 (barrier analysis): Is it transparently shown that the execution of at least one of the alterna- | 1, 2 | NA. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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| tives is not prevented by the identified barriers? | | | | | | | | | | | | |
| B.5.11. Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD (step 4a)? | 1, 2 | N/A | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | |
| B.5.12. 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)? How? | 1, 2 | N/A | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | |
| B.5.13. Is it appropriately explained how the approval of the project activity will help to overcome the economic and financial hurdles or other identified barriers? | 1, 2 | N/A | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | |
| If the additionality tool has not been used please answer B.5.14 to B.5.19 | | | | | | | | | | | | |
| B.5.14. If the starting date of the project activity is before the date of validation, is evidence available to prove that incentive from the CDM was seriously considered in the decision to proceed with the project activity? | 1, 2, 16, 19, 33 | Yes, the board meeting minutes dated 16 th Feb. 2005 has been verified on-site. “Contract of Purchase and Sale of Machines” was signed by Hunan Xuefeng Mechanical & Electrical Equipment Co., Ltd. and Dongkou County Zhexiang Hydroelectric Co., Ltd. on 2 nd March, 2006. The construction starting date was 28 th June, 2006. | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | |
| B.5.15. Is a complete list of barriers developed that prevents the project activity to occur? | 1, 2 | Additionality is demonstrated by showing that the project activity would not have occurred anyway due to the existence of an investment barrier, substantiated by a benchmark analysis. | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | |
| B.5.16. Does this list include at least one of the following barriers? | 1, 2 | <table><tr><td>Barrier</td><td>Discussed?</td><td>Verifiable?</td></tr><tr><td></td><td></td><td></td></tr></table> | | | Barrier | Discussed? | Verifiable? | | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Barrier | Discussed? | Verifiable? | | | | | | | | | | |
| | | | | | | | | | | | | |

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| | | Investment | Yes | Yes | | |
| | | Technological | NA | NA | | |
| | | Due to prevailing practice | NA | NA | | |
| | | Other | NA | NA | | |
| B.5.17. Does the discussion sufficiently take into account relevant national and/or sectoral policies? | 1, 2 | It is used the benchmark IRR quoted from “Economic Evaluation Code for Small Hydropower Projects (Document No. SL16-95)”. The IRR benchmark is 10% (including VAT) | | | ☑ | ☑ |
| B.5.18. Is transparent and documented evidence provided on the existence and significance of these barriers? | 1, 2, 13, 14 | <p>The project IRR of the project is calculated (7.25 %) and compared to a benchmark stated in the Economic Evaluation Code for Small Hydropower Projects (Document No. SL16-95), issued by the State Power Corporation of China. This publication provides a 10% Internal Rate of Return (IRR) benchmark as a guideline for investments in the power sector. Even after having conducted a sensitivity analysis, it is shown that the project activity is not financially attractive, evidencing that there exists an investment barrier to the project.</p> <p><u>Corrective Action Request No.5.</u></p> <p>In fact, the date of approval of the three hydropower stations is not the same. Please indicate them in the revised PDD.</p> <p>In table 5, the annual O & M cost is different from the number in the initial design report. Please correct it and accordingly revise the IRR calculation.</p> <p>At the sensitivity analysis the electricity generation is missing. Moreover, the row “investment” is in the wrong order. If the investment is decreasing the IRR should raise.</p> | | | CAR5 | ☑ |
| B.5.19. Is it appropriately explained how the ap- | 1, 2 | B.5. of the PDD explains how the approval of the CDM project | | | ☑ | ☑ |

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| proval of the project activity will help to overcome the identified barriers? | | activity will help to overcome the investment barrier. | | | | | | | | |
| B.6. Emissions reductions | | | | | | | | | | |
| B.6.1. Explanation of methodological choices | | | | | | | | | | |
| B.6.1.1. Is it explained how the procedures provided in the methodology are applied by the proposed project activity? | 1, 2 | The calculation of the emission reduction is applied according to the steps described in ACM0002: <ul style="list-style-type: none">- Calculation of the Operating Margin Emission Factor- Calculation of the Build Margin Emission Factor- Calculation of the Combined Margin Emission Factor These steps are described in a transparent manner. The ex-ante approach is chosen for the baseline emission calculation. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | |
| 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 | The OM and BM calculation steps published by the Chinese DNA on Aug. 7 th , 2007, the IPCC 2006 values and China Energy Statistics Yearbook 2006 values were adopted for the calculation of the emission factor according to the methodology's advice. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | |
| B.6.1.3. Component 1: emissions from use of fossil fuel | 1, 2 | <table border="1"><tr><td>Project emission checklist</td><td>Yes / No</td></tr><tr><td>Component discussed in the PDD?</td><td>No</td></tr><tr><td>Formulae correctly applied?</td><td>No</td></tr></table> <u>Corrective Action Request No.6.</u> The PDD should inform that there are no emissions from any kind of fossil fuel use related with the project activity. | Project emission checklist | Yes / No | Component discussed in the PDD? | No | Formulae correctly applied? | No | CAR6 | <input checked="" type="checkbox"/> |
| Project emission checklist | Yes / No | | | | | | | | | |
| Component discussed in the PDD? | No | | | | | | | | | |
| Formulae correctly applied? | No | | | | | | | | | |
| B.6.1.4. Are the formulae required for the determi- | 1, 2 | Yes, the formulae to calculate the baseline emissions are correct- | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | |

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| nation of baseline emissions correctly presented, enabling a complete identification of parameters to be used and / or monitored? | | ly presented. They are in compliance with the ones defined in the methodology ACM0002 version 06. | | |
| B.6.1.5. 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 in accordance with the methodology. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.6.1.6. Are the formulae required for the determination of emission reductions correctly presented? | 1, 2 | Formulae in the PDD are clearly presented for the determination of emission reductions (in B.6.3. of the PDD). As the project emissions and leakage are both zero, the emission reductions are equal to the baseline emissions. However, the PDD should mention that there is no fossil fuel used related with the project activity. See B.6.1.3. | See CAR6 | <input checked="" type="checkbox"/> |
| 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 | The list of parameters presented in B.6.2. is not considered to be complete. <u>Corrective Action Request No.7.</u> The following parameters are missing and should be included in B.6.2. of the PDD: - electricity imports (in case of electricity imports from other grids to the Central China grid) -CO ₂ emission coefficient of fuels used in connected grids (in case of electricity imports from other grids to the Central China grid) | CAR7 | <input checked="" type="checkbox"/> |
| B.6.2.2. Parameter Title: Annual electricity supplied to the grid prior | 1, 2 | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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| to retrofit (applicable only for retrofit and modification activities) | | Data Checklist | Yes / No | | |
| | | Title in line with methodology? | NA | | |
| | | 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.6.2.3. Parameter Title: Emission factor of the grid (CM) | 1, 2 | Data Checklist | Yes / No | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | | 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 | | |

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|--|----------|---|----------------|-----------|---------------------------------|-----|--------------------------------|-----|---------------------------------------|-----|----------------------------|-----|-------------------------------------|-------------------------------------|-------------------------------|-----|-------------------------------------|-----|---|-----|-------------------------------------|-------------------------------------|
| | | The CM is calculated in chapter B.6.3. | | | | | | | | | | | | | | | | | | | | |
| B.6.2.4. Parameter Title: Operating margin (OM) emission factor of the grid | 1, 2 | <table><thead><tr><th>Data Checklist</th><th>Yes / No</th></tr></thead><tbody><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></tbody></table> <p>The OM is calculated in chapter B.6.3.</p> | Data Checklist | Yes / No | Title in line with methodology? | Yes | Data unit correctly expressed? | Yes | Appropriate description? | 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 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Data Checklist | Yes / No | | | | | | | | | | | | | | | | | | | | | |
| Title in line with methodology? | Yes | | | | | | | | | | | | | | | | | | | | | |
| Data unit correctly expressed? | Yes | | | | | | | | | | | | | | | | | | | | | |
| Appropriate description? | Yes | | | | | | | | | | | | | | | | | | | | | |
| Source clearly referenced? | Yes | | | | | | | | | | | | | | | | | | | | | |
| Correct value provided? | Yes | | | | | | | | | | | | | | | | | | | | | |
| Has this value been verified? | Yes | | | | | | | | | | | | | | | | | | | | | |
| Choice of data correctly justified? | Yes | | | | | | | | | | | | | | | | | | | | | |
| Measurement method correctly described? | Yes | | | | | | | | | | | | | | | | | | | | | |
| B.6.2.5. Parameter Title: Build margin (BM) emission factor of the grid | 1, 2 | <table><thead><tr><th>Data Checklist</th><th>Yes / No</th></tr></thead><tbody><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></tbody></table> | Data Checklist | Yes / No | Title in line with methodology? | Yes | Data unit correctly expressed? | Yes | Appropriate description of parameter? | Yes | Source clearly referenced? | Yes | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | |
| Data Checklist | Yes / No | | | | | | | | | | | | | | | | | | | | | |
| Title in line with methodology? | Yes | | | | | | | | | | | | | | | | | | | | | |
| Data unit correctly expressed? | Yes | | | | | | | | | | | | | | | | | | | | | |
| Appropriate description of parameter? | Yes | | | | | | | | | | | | | | | | | | | | | |
| Source clearly referenced? | Yes | | | | | | | | | | | | | | | | | | | | | |

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|--|----------|---|-------------------------|----------------|-------------------------------|-------------------------------------|-------------------------------------|--------------------------------|---|---------------------------------------|-----|----------------------------|-----|-------------------------|-----|-------------------------------|-----|-------------------------------------|-----|---|----|-------------------------------------|-------------------------------------|
| | | <table><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> <p>The BM is calculated in chapter B.6.3.</p> | Correct value provided? | Yes | Has this value been verified? | Yes | Choice of data correctly justified? | Yes | Measurement method correctly described? | Yes | | | | | | | | | | | | | |
| Correct value provided? | Yes | | | | | | | | | | | | | | | | | | | | | | |
| Has this value been verified? | Yes | | | | | | | | | | | | | | | | | | | | | | |
| Choice of data correctly justified? | Yes | | | | | | | | | | | | | | | | | | | | | | |
| Measurement method correctly described? | Yes | | | | | | | | | | | | | | | | | | | | | | |
| B.6.2.6. Parameter Title: fuel consumption of each power source | 1, 2 | <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>NA</td></tr></table> | | 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? | NA | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | NA | | | | | | | | | | | | | | | | | | | | | | |
| B.6.2.7. Parameter Title: emission coefficient of each fuel | 1, 2 | <table><tr><th>Data Checklist</th><th>Yes / No</th></tr></table> | | Data Checklist | Yes / No | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | |
| Data Checklist | Yes / No | | | | | | | | | | | | | | | | | | | | | | |

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|--|----------|---|-----|----------------|-----------|---------------------------------|-----|--------------------------------|-----|---------------------------------------|-----|----------------------------|----|-------------------------|-----|------|---|
| | | 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? | NA | | | | | | | | | | | | | | |
| B.6.2.8. Parameter Title: electricity generation of each power source | 1, 2 | <u>Corrective Action Request No.8.</u> Regarding the parameters: “CAP _{j, y} ”. and Installed Capacity: the source has to be mentioned in more detail, including the corrective years of the China Electric Power Yearbook and the version of <i>the bulletin on the baseline emission factor of China district power grids</i> . <table><tr><td>Data Checklist</td><td>Yes / No</td></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> | | Data Checklist | Yes / No | Title in line with methodology? | Yes | Data unit correctly expressed? | Yes | Appropriate description of parameter? | Yes | Source clearly referenced? | No | Correct value provided? | Yes | CAR8 | ☑ |
| Data Checklist | Yes / No | | | | | | | | | | | | | | | | |
| Title in line with methodology? | Yes | | | | | | | | | | | | | | | | |
| Data unit correctly expressed? | Yes | | | | | | | | | | | | | | | | |
| Appropriate description of parameter? | Yes | | | | | | | | | | | | | | | | |
| Source clearly referenced? | No | | | | | | | | | | | | | | | | |
| Correct value provided? | Yes | | | | | | | | | | | | | | | | |

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|---|----------|--|-----|----------------|-----------|---------------------------------|----|--------------------------------|----|---------------------------------------|----|----------------------------|----|-------------------------|----|-------------------------------|----|-------------------------------------|----|---|----|---|---|
| | | Has this value been verified? | Yes | | | | | | | | | | | | | | | | | | | | |
| | | Choice of data correctly justified? | Yes | | | | | | | | | | | | | | | | | | | | |
| | | Measurement method correctly described? | NA | | | | | | | | | | | | | | | | | | | | |
| B.6.2.9. Parameter Title: surface area of full reservoir level (for new hydroelectric activities only) | 1, 2 | NA | | ☑ | ☑ | | | | | | | | | | | | | | | | | | |
| B.6.2.10. Parameter Title: fraction of time with low costs /must run plant at the margin (for simple adjusted OM only) | 1, 2 | <table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Choice of data correctly justified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table> | | Data Checklist | Yes / No | Title in line with methodology? | NA | 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 | ☑ | ☑ |
| Data Checklist | Yes / No | | | | | | | | | | | | | | | | | | | | | | |
| Title in line with methodology? | NA | | | | | | | | | | | | | | | | | | | | | | |
| 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.6.2.11. Parameter Title: electricity imports | 1, 2 | <u>Clarification Request No. 1.</u> It should be informed in the PDD whether electricity imports occur | | CR1 | ☑ | | | | | | | | | | | | | | | | | | |

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|---|----------|---|----------------|-----------|---------------------------------|----|--------------------------------|----|---------------------------------------|----|----------------------------|----|-------------------------|----|-------------------------------|-------------------------------------|-------------------------------------|----|---|----|--|--|
| | | <div>from other electricity grids to the Central China grid. If this is the case, the parameter “electricity imports” has to be included in B.6.2. of the PDD (in this case see B.6.2.1.).</div> <table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>CR</td></tr><tr><td>Data unit correctly expressed?</td><td>CR</td></tr><tr><td>Appropriate description of parameter?</td><td>CR</td></tr><tr><td>Source clearly referenced?</td><td>CR</td></tr><tr><td>Correct value provided?</td><td>CR</td></tr><tr><td>Has this value been verified?</td><td>CR</td></tr><tr><td>Choice of data correctly justified?</td><td>CR</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table> | Data Checklist | Yes / No | Title in line with methodology? | CR | Data unit correctly expressed? | CR | Appropriate description of parameter? | CR | Source clearly referenced? | CR | Correct value provided? | CR | Has this value been verified? | CR | Choice of data correctly justified? | CR | Measurement method correctly described? | NA | | |
| Data Checklist | Yes / No | | | | | | | | | | | | | | | | | | | | | |
| Title in line with methodology? | CR | | | | | | | | | | | | | | | | | | | | | |
| Data unit correctly expressed? | CR | | | | | | | | | | | | | | | | | | | | | |
| Appropriate description of parameter? | CR | | | | | | | | | | | | | | | | | | | | | |
| Source clearly referenced? | CR | | | | | | | | | | | | | | | | | | | | | |
| Correct value provided? | CR | | | | | | | | | | | | | | | | | | | | | |
| Has this value been verified? | CR | | | | | | | | | | | | | | | | | | | | | |
| Choice of data correctly justified? | CR | | | | | | | | | | | | | | | | | | | | | |
| Measurement method correctly described? | NA | | | | | | | | | | | | | | | | | | | | | |
| B.6.2.12. Parameter Title: CO ₂ emission coefficient of fuels used in connected grids | 1, 2 | <div>See 6.2.1. and 6.2.11.</div> <table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>CR</td></tr><tr><td>Data unit correctly expressed?</td><td>CR</td></tr><tr><td>Appropriate description of parameter?</td><td>CR</td></tr><tr><td>Source clearly referenced?</td><td>CR</td></tr><tr><td>Correct value provided?</td><td>CR</td></tr></table> | Data Checklist | Yes / No | Title in line with methodology? | CR | Data unit correctly expressed? | CR | Appropriate description of parameter? | CR | Source clearly referenced? | CR | Correct value provided? | CR | See CR1 | <input checked="" type="checkbox"/> | | | | | | |
| Data Checklist | Yes / No | | | | | | | | | | | | | | | | | | | | | |
| Title in line with methodology? | CR | | | | | | | | | | | | | | | | | | | | | |
| Data unit correctly expressed? | CR | | | | | | | | | | | | | | | | | | | | | |
| Appropriate description of parameter? | CR | | | | | | | | | | | | | | | | | | | | | |
| Source clearly referenced? | CR | | | | | | | | | | | | | | | | | | | | | |
| Correct value provided? | CR | | | | | | | | | | | | | | | | | | | | | |

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| | | Has this value been verified? | CR | | |
| | | Choice of data correctly justified? | CR | | |
| | | Measurement method correctly described? | NA | | |
| | | | | | |
| 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? What kind of procedure is used? | 1, 2 | Yes, the projection is based on the same procedure as for future monitoring. | | ☑ | ☑ |
| B.6.3.2. Are the GHG calculations documented in a complete and transparent manner? | 1, 2 | The calculation process is demonstrated in B.6.3. and the data are completely presented in Annex 3 of the PDD. | | ☑ | ☑ |
| B.6.3.3. If there is more than one component of the project activity, then, are emission reduction calculations provided separately for each component? | 1, 2 | NA. | | ☑ | ☑ |
| B.6.3.4. Is the data provided in this section consistent with data as presented in other chapters of the PDD? | 1, 2 | The emission factor of the defined grid and annual emission reductions are consistent with the figures in other chapters of the PDD, for instance with chapter A.4.4 and B.6.4. – where the estimated amount of emission reductions is described. | | ☑ | ☑ |
| 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 | As demonstrated in the PDD, the hydropower project results in fewer GHG emissions than the baseline scenario. | | ☑ | ☑ |
| B.6.4.2. Is the form/table required for the indication | 1, 2 | Yes, the table is complete; it includes the emission due to the pro- | | ☑ | ☑ |

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| of projected emission reductions correctly applied? | | ject activity, baseline emissions, leakage emissions and the over-all emission reductions. | | | |
| B.6.4.3. If the project activity involves more than one component, is separate table included for each of the component. | 1, 2 | NA. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.6.4.4. Do these values comply with small-scale criteria for every year? | 1, 2 | Yes, these values comply with small-scale criteria for every year. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.6.4.5. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period? | 1, 2 | Yes, the ex ante estimation of emission reductions due to the project is calculated for a first crediting period of 7 years starting with the date of registration. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.6.4.6. Is the data provided in this section in consistency with data as presented in other chapters of the PDD? | 1, 2 | Yes, the data is consistent with other parts of the PDD, e.g. table A.4.4 describing the estimated amount of emission reductions. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.7. Application of the monitoring methodology and description of the monitoring plan | | | | | |
| B.7.1. Data and parameters monitored | | | | | |
| B.7.1.1. Is the list of parameters presented in chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology? | 1, 2 | Because the ex-ante approach for the calculation of the EF is adopted and there are no project emissions due to the consumption of fossil fuels, the parameters to be monitored are the electricity generated by the proposed project. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Comment on any line answered with "No" | | | | | |
| B.7.1.1.1. Parameter Title: Electricity generated by the renewable technology | 1, 2 | The standard DL/T 448-2000 has been indicated and the accuracy of the meters is 0.5 S. The calibration period is annual.. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| | | Monitoring Checklist | | | Yes / No |
| | | Title in line with methodology? | | | Yes |

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|---|----------|--|--------------------------------|------------|---------------------------------------|-----|--------------------------------|-----|--|-----|-------------------------------|-----|---|-----|---------------------------------|-----|---|----|---------------------------------|-----|----------------------------------|-----|-----------------------------|----|-------------------------------|----|--|---|---|
| | | <table><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>No</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table> | Data unit correctly expressed? | Yes | Appropriate description of parameter? | Yes | Source clearly referenced? | Yes | Correct value provided for estimation? | Yes | Has this value been verified? | Yes | Measurement method correctly described? | Yes | Correct reference to standards? | Yes | Indication of accuracy provided? | No | QA/QC procedures described? | Yes | QA/QC procedures appropriate? | Yes | | | | | | | |
| Data unit correctly expressed? | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Appropriate description of parameter? | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Source clearly referenced? | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Correct value provided for estimation? | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Has this value been verified? | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Measurement method correctly described? | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Correct reference to standards? | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Indication of accuracy provided? | No | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| QA/QC procedures described? | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| QA/QC procedures appropriate? | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B.7.1.1.2. Parameter Title: Estimated electricity that would have been produced by existing units, WTEy | | <table><tr><td>Monitoring Checklist</td><td>Yes / No</td></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided for estimation?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr><tr><td>Correct reference to standards?</td><td>NA</td></tr><tr><td>Indication of accuracy provided?</td><td>NA</td></tr><tr><td>QA/QC procedures described?</td><td>NA</td></tr><tr><td>QA/QC procedures appropriate?</td><td>NA</td></tr></table> | Monitoring Checklist | Yes / No | Title in line with methodology? | NA | Data unit correctly expressed? | NA | Appropriate description of parameter? | NA | Source clearly referenced? | NA | Correct value provided for estimation? | NA | Has this value been verified? | NA | Measurement method correctly described? | NA | Correct reference to standards? | NA | Indication of accuracy provided? | NA | QA/QC procedures described? | NA | QA/QC procedures appropriate? | NA | | ☑ | ☑ |
| Monitoring Checklist | Yes / No | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Title in line with methodology? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Data unit correctly expressed? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Appropriate description of parameter? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Source clearly referenced? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Correct value provided for estimation? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Has this value been verified? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Measurement method correctly described? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Correct reference to standards? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Indication of accuracy provided? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| QA/QC procedures described? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| QA/QC procedures appropriate? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B.7.1.1.3. Parameter title: surface area of full reservoir level | | <table><tr><td>Monitoring Checklist</td><td>Yes / No</td></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr></table> | Monitoring Checklist | Yes / No | Title in line with methodology? | NA | | ☑ | ☑ | | | | | | | | | | | | | | | | | | | | |
| Monitoring Checklist | Yes / No | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Title in line with methodology? | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | | Data unit correctly expressed? | NA | | |
| | | Appropriate description of parameter? | NA | | |
| | | Source clearly referenced? | NA | | |
| | | Correct value provided for estimation? | NA | | |
| | | Has this value been verified? | NA | | |
| | | Measurement method correctly described? | NA | | |
| | | Correct reference to standards? | NA | | |
| | | Indication of accuracy provided? | NA | | |
| | | QA/QC procedures described? | NA | | |
| | | QA/QC procedures appropriate? | NA | | |
| B.7.1.1.4. Amount of biomass input (if applicable) | 1, 2 | | | ☑ | ☑ |
| | | Monitoring Checklist | Yes / No | | |
| | | Title in line with methodology? | NA | | |
| | | Data unit correctly expressed? | NA | | |
| | | Appropriate description of parameter? | NA | | |
| | | Source clearly referenced? | NA | | |
| | | Correct value provided for estimation? | NA | | |
| | | Has this value been verified? | NA | | |
| | | Measurement method correctly described? | NA | | |
| | | Correct reference to standards? | NA | | |
| | | Indication of accuracy provided? | NA | | |
| | | QA/QC procedures described? | NA | | |
| | | QA/QC procedures appropriate? | NA | | |
| B.7.1.1.5. Amount of fossil fuel (if applicable) | 1, 2 | | | ☑ | ☑ |
| | | Monitoring Checklist | Yes / No | | |
| | | Title in line with methodology? | NA | | |

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|---|----------|---|--|--------------------------------|-----------|---------------------------------------|----|----------------------------|----|--|----|-------------------------------|----|---|----|---------------------------------|----|----------------------------------|----|-----------------------------|----|-------------------------------|----|--|--|
| | | <table><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided for estimation?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr><tr><td>Correct reference to standards?</td><td>NA</td></tr><tr><td>Indication of accuracy provided?</td><td>NA</td></tr><tr><td>QA/QC procedures described?</td><td>NA</td></tr><tr><td>QA/QC procedures appropriate?</td><td>NA</td></tr></table> | | Data unit correctly expressed? | NA | Appropriate description of parameter? | NA | Source clearly referenced? | NA | Correct value provided for estimation? | NA | Has this value been verified? | NA | Measurement method correctly described? | NA | Correct reference to standards? | NA | Indication of accuracy provided? | NA | QA/QC procedures described? | NA | QA/QC procedures appropriate? | NA | | |
| Data unit correctly expressed? | NA | | | | | | | | | | | | | | | | | | | | | | | | |
| Appropriate description of parameter? | NA | | | | | | | | | | | | | | | | | | | | | | | | |
| Source clearly referenced? | NA | | | | | | | | | | | | | | | | | | | | | | | | |
| Correct value provided for estimation? | NA | | | | | | | | | | | | | | | | | | | | | | | | |
| Has this value been verified? | NA | | | | | | | | | | | | | | | | | | | | | | | | |
| Measurement method correctly described? | NA | | | | | | | | | | | | | | | | | | | | | | | | |
| Correct reference to standards? | NA | | | | | | | | | | | | | | | | | | | | | | | | |
| Indication of accuracy provided? | NA | | | | | | | | | | | | | | | | | | | | | | | | |
| QA/QC procedures described? | NA | | | | | | | | | | | | | | | | | | | | | | | | |
| QA/QC procedures appropriate? | NA | | | | | | | | | | | | | | | | | | | | | | | | |
| B.7.2. Description of the monitoring plan | | | | | | | | | | | | | | | | | | | | | | | | | |
| B.7.2.1. Is the operational and management structure clearly described and in compliance with the envisioned situation? | 1, 2 | A clear and detailed operational and management structure has been indicated in B.7.2. | | ☑ | ☑ | | | | | | | | | | | | | | | | | | | | |
| B.7.2.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided? | 1, 2, 24 | Yes. According to the PDD, in order to insure the project's operation, the project owner compiled “the Handbook of Monitoring and Management for Changtanghe Hydropower Project”. It has identified the duties of the related positions. | | ☑ | ☑ | | | | | | | | | | | | | | | | | | | | |
| B.7.2.3. Does the monitoring plan provide current good monitoring practice? | 1, 2 | The monitoring is done according to the Technical Administrative Code of Electric Energy Metering (DL/T448 - 2000) and thus meets current good monitoring practice. The electric energy metering equipment will be properly configured, and the metering equipment will be checked by both the project owner and the grid company before the project starts operation. | | ☑ | ☑ | | | | | | | | | | | | | | | | | | | | |

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| B.7.2.4. If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions? | 1, 2 | NA. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.8. Date of completion of the application of the baseline study and monitoring methodology on the name of the responsible person(s)/entity(ies) | | | | |
| B.8.1.1. Is there any indication of a date when the baseline was determined? | 1, 2 | Yes, the date of completion of the baseline study and monitoring methodology is 20/07/2007. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.8.1.2. Has dd/mm/yyyy format been used to indicate the date. | 1, 2 | Yes, the date is 20/07/2007. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.8.1.3. Is this consistent with the time line of the PDD history? | 1, 2 | Yes. Version 1.0 of the PDD was finalized on 20/07/2007. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.8.1.4. 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 | Feng Li was present at the on-site audit and could be interviewed. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| B.8.1.5. Is information provided whether this person / entity is also considered a project participant? | 1, 2 | Above individuals / entities determined the baseline are not as project participants | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? Is it the earliest date of construction, implementation or real action? | 1, 2, 16 | Yes, the project starting date in the GSP PDD was 12/05/2006. The operational lifetime is expected to be 30 years. <u>Corrective Action Request No.9.</u> During the on-site visit the validation team got the confirmation that the three stations' starting date was different. Please indicate | CAR9 | <input checked="" type="checkbox"/> |

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| | | them correctly in the revised PDD and use the earliest starting date (purchasing contract, construction start) as the date mentioned in C.1. | | |
| 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 | <p>The life time of the project is 30 years. Confirming with the provided evidence, such as purchasing contract and the business plan, the validator has the confidence that it's reasonable. Therefore the crediting period of 7 years with potential for 2 renewals is chosen as the crediting period.</p> <p><u>Corrective Action Request No.10.</u></p> <p>The life time of the project was designed with 20 years in PDR. Please correct this mistake.</p> | CAR10 | <input checked="" type="checkbox"/> |
| C.2.2. Has dd/mm/yyyy format been used to indicate the start date of the crediting period? | 1, 2 | <p>Yes, the start date of the crediting period is 01/01/2008 according to the information in the PDD.</p> <p><u>Corrective Action Request No.11.</u></p> <p>The starting date of project operation is not reasonable. Project participants are requested to change the start of the crediting period.</p> <p>Therefore, pls. modify the relative emission reduction figures in A.4.4 and B.6.4 of the PDD and the starting date in A.4.4 and C.2.2.1. of the PDD.</p> | CAR11 | <input checked="" type="checkbox"/> |
| D. Environmental impacts | | | | |
| D.1. If required by the host Party, documentation on the analysis of the environmental impacts of the project activity: | | | | |
| D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved? If yes answer also D.1.2 to D.1.4 | 1, 2, 7, 8 | <p>Yes, EIA is a must in P.R. China for new hydro power projects. An Environmental Impact Assessment (EIA) was carried out which was approved by Dongkou County Dept of Environmental Protection, 30th April, 2005.</p> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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| D.1.2. Has the analysis of the environmental impacts of the project activity been sufficiently described? | 1, 2, 7, 8 | Yes, the environmental impacts brought by the project and the remediation measures concluded in the EIA report are summarized in the PDD. <u>Corrective Action Request No.12.</u> Please refer to the Compensation Standards in the revised PDD and add the reference. | CAR12 | <input checked="" type="checkbox"/> |
| D.1.3. Will the project create any adverse environmental effects? | 1, 2, 7, 8 | The environmental impacts of China Changtanghe Rundle Small Hydropower Project are not considered to be significant. There is no resettlement or relocation of population, buildings or public services required, therefore social and environmental influences are partial, short-term and reversible. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| D.1.4. Were transboundary environmental impacts identified in the analysis? | 1, 2, 7, 8 | The proposed hydropower plant is located within China, and it has no transboundary environmental impacts; hence this section is not applicable. <u>Corrective Action Request No.13.</u> The PDD should mention that no transboundary environmental impacts are related with the project activity. | CAR13 | <input checked="" type="checkbox"/> |
| D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party | | | | |
| D.2.1. Have the identified environmental impacts been addressed in the project design sufficiently? | 1, 2, 7, 8 | See D.1.2. | See CAR13 | <input checked="" type="checkbox"/> |
| D.2.2. Does the project comply with environmental legislation in the host country? | 1, 2, 7, 8 | Yes, it does. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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| 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, 25 | The project owner carried out the questionnaires to them in March 2005, and 12 copies of questionnaire were distributed, 12 pieces of reply were received. <u>Corrective Action Request No.14.</u> The PDD should inform the exact day of the stakeholder consultation and it has to be described how the stakeholders were identified and how all of them have been informed by adequate media. | CAR14 | <input checked="" type="checkbox"/> |
| E.1.2. Have appropriate media been used to invite comments by local stakeholders? | 1, 25 | Please see E.1.1. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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, 25 | There are no regulations/laws in China for carrying out the stakeholder consultation process for this project activity. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| E.1.4. Is the undertaken stakeholder process that was carried out described in a complete and transparent manner? | 1, 25 | Yes. The process is described in a complete and transparent manner. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| E.2. Summary of the comments received | | | | |
| E.2.1. Is a summary of the received stakeholder comments provided? | 1, 25 | <u>Clarification Request No. 2.</u> A summary of the received stakeholder comments should be provided to the audit team. | CR2 | |
| E.3. Report on how due account was taken of any comments received | | | | |
| E.3.1. Has due account been taken of any stakeholder comments received? | 1, 25 | Given the generally positive (or neutral) nature of the comments received, no corrective action is necessary in response. | See CR2 | <input checked="" type="checkbox"/> |

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| | | However, see E.2.1. | | |
| F. Annexes 1 - 4 | | | | |
| F.1. Annex 1: Contact Information | | | | |
| F.1.1. Is the information provided consistent with the one given under section A.3? | 1, 2 | The information provided in A.3. is consistent with the one given in Annex 1. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| F.1.2. Is the information on all private participants and directly involved Parties presented? | 1, 2 | Yes. Information on all project participants is presented. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| F.2. Annex 2: Information regarding public funding | | | | |
| F.2.1. Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants? | 1, 2 | No public funding is involved in this project activity | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| F.2.2. If necessary: Is an affirmation available that any such funding from Annex-I-countries does not result in a diversion of ODA? | 1, 2 | NA. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| F.3. Annex 3: Baseline information | | | | |
| F.3.1. If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD? | 1, 2 | Yes, the information is consistent with data presented by other section of the PDD. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| F.3.2. Is the data provided verifiable? Has sufficient evidence been provided to the validation team? | 1, 2 | Yes, it is. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| F.3.3. Does the additional information substantiate / support statements given in other sections of | 1, 2 | Yes, it does. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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| the PDD? | | | | |
| F.4. Annex 4: Monitoring information | | | | |
| F.4.1. If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD? | 1, 2 | The information on monitoring is consistent with data presented in other sections of the PDD | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| F.4.2. Is the information provided verifiable? Has sufficient evidence been provided to the validation team? | 1, 2 | Yes, it is. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| F.4.3. Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD? | 1, 2 | Yes, it is. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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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 |
|---|-----------------|---|--|
| <u>Open issue</u> Pls. deliver the LoAs issued by China and UK together with MoC to DOE before raising the request of registration. | A.3.2. | The LoAs and MoC will be obtained before validation report finalized. | <input checked="" type="checkbox"/> The LoAs and MoC have been verified by the local auditor. The issue is considered to resolve. |
| CARs | | | |
| <u>Corrective Action Request No.1.</u> The completing date should be written into DD/MM/YYYY. | A.1.2. | The completing date is rewritten as DD/MM/YYYY. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the local auditor. |
| <u>Corrective Action Request No.2.</u> <ul style="list-style-type: none"> To increase transparency, please clearly describe the GPS data including seconds. Please clearly describe the GPS data for the dams and the powerhouse of the three stations separately. There is a blank bubble in the map. Please revise. | A.4.1.1. | The GPS data (geographical coordinates) is defined including seconds for the powerhouses of three cascades stations separately in 3 rd version PDD. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the local auditor. |
| <u>Corrective Action Request No.3.</u> The starting date of Shuangjiangqiao power plant is different from the actual date. Please correct it in the revised PDD in C.1 as well as | A.4.2.6. | The starting date of power plants is adjusted according to the project owner's updated information, which is corrected in 3 rd version PDD. The operational time of Shuanglongqiao power plant is | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the |

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| Clarifications and corrective action requests by validation team | Ref. to table 1 | Summary of project owner response | Validation team conclusion |
|--|-----------------|---|--|
| A.2. The operational time of Shuanglongqiao power plant is 4368h in the initial design report different from the one in the table 2 of the PDD. Please correct it. | | corrected to be 4368 hours in 3 rd version PDD. | local auditor. |
| <u>Corrective Action Request No.4.</u> However, emission reductions may have to be revised due to the change of the operation time of Shuanglongqiao power plant (See and a possible updating of the emissions factor, which however is not obligatory as the old used EF data are more conservative than the new data (see B.6.1.2.). In case, the new data are used, project participants are requested to refer to NDRC emission factors issued on August 9 th , 2007". The total estimated emission reduction above Table 3 is different from 270,475 dated in Table 3. | A.4.3.2. | Due to the data in Initial Design Report, the <i>power generation, net power supply, emission reductions, IRR calculation</i> have all been adjusted, which is referred in PDD, Revised materials approved by local institute of water resource design (as complementary materials), and IRR calculation excel tables. The EF of CCPG has been revised in consistency with NDRC emission factors issued on August 9 th , 2007. The total estimated emission reductions is revised and checked. The data is in accordance with each other throughout the whole PDD. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the local auditor. |
| <u>Corrective Action Request No.5.</u> In fact, the date of approval of the three hydropower stations is not the same. Please indicate them in the revised PDD. In table 5, the annual O & M cost is different from the number in the initial design report. Please correct it and accordingly revise the IRR calculation. At the sensitivity analysis the electricity generation is missing. Moreover, the row "in- | B.5.18. | The date of FSR approval of three stages hydropower stations is the same, but the dates of PDR approval of three stages hydropower stations is different separately, the details of each station is specified in A.2 part. As re-evaluate by project participant, the O&M cost result in table 5 is different from the data given in the Initial design report, the calculation process is given in the IRR spreadsheet. Other parameters used in the spreadsheet are sourcing from the PDR, but the calculation process is more corrective than which in PDR, | <input checked="" type="checkbox"/> The data have been verified with the data from PDR. Most of the data are consistent with the ones from PDR except O&M cost. The quoted data in the IRR calculation and the PDD is 2.3712 Million Yuan, which is 3.6238 Million Yuan in PDR. |

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| vestment" is in the wrong order. If the investment is decreasing the IRR should raise. | | and the results are more conservative than which in PDR. Meanwhile, the IRR calculation is revised accordingly. The sensitivity analysis has been revised. | The used data is more conservative. A preliminary design report/FS in China is required to be developed by a third party, accredited for this task, directly by the government. An approval letter of the preliminary design report is issued by the government after it passes the public assessment of the sector experts designated by the government. Hence, in TUV's opinion, PDR/FS of the proposed project can be regarded as an accurate and trustworthy source of information coming from a recognized entity once it has the approval letter from the government. The input parameters used in the financial analysis were compared with the data reported for other similar proposed hydropower CDM projects connected to the Central China Power Grid, e.g. investment costs per kWh, O&M costs per MW, electric- |

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| | | | ity tariff and percentage of O&M costs relative to total investment costs. By in addition applying our sectoral competence, the input parameters used in the financial analysis are deemed reasonable. |
| <u>Corrective Action Request No.6.</u> The PDD should inform that there are no emissions from any kind of fossil fuel use related with the project activity. | B.6.1.3. B.6.1.6 | The part of project emissions in B.6 part has informed that there is no emission from any kind of fossil fuel usage in project site. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the local auditor. |
| <u>Corrective Action Request No.7.</u> The following parameters are missing and should be included in B.6.2. of the PDD: - electricity imports (in case of electricity imports from other grids to the Central China grid) -CO ₂ emission coefficient of fuels used in connected grids (in case of electricity imports from other grids to the Central China grid) | B.6.2.1. B.6.2.3. B.6.2.4. B.6.2.5. B.6.2.7. B.6.2.9. B.6.2.12. | Emission coefficient of each fuel is provided in the table of $EF_{CO_2, i}$. There is no power import from other grids to CCPG, and thus it is unnecessary to include "electricity imports" and CO ₂ emission coefficient of fuels used in connected grids in PDD. | <input checked="" type="checkbox"/> The issues have been verified in the revised PDD by the local auditor. |
| <u>Corrective Action Request No.8.</u> Regarding the parameters: " $CAP_{j,y}$ ". and Installed Capacity: the source has to be mentioned in more detail, including the corrective years of the China Electric Power Yearbook and the version of <i>the bulletin on the baseline</i> | B.6.2.8. | The sources of parameter $CAP_{i,y}$ has been specified in parameter table in B6.2. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the local auditor. |

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| <i>emission factor of China district power grids.</i> | | | |
| <u>Corrective Action Request No.9.</u> During the on-site visit the validation team got the confirmation that the three stations' starting date was different. Please indicate them correctly in the revised PDD and use the earliest starting date (purchasing contract, construction start) as the date mentioned in C.1. | C.1.1. | The three stations' construction works start at different times, and C1.1 part selects the earliest starting date between the construction starting dates of three cascades hydropower stations and the main equipment purchase agreement as project activity starting date. The detailed starting dates of individual cascade station are given in A.2 part of revised PDD. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the local auditor. |
| <u>Corrective Action Request No.10.</u> The life time of the project was designed with 20 years in PDR. Please correct this mistake. | C.2.1. | The life time of the project was revised as 20 years in PDD. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD. |
| <u>Corrective Action Request No.11.</u> The starting date of project operation is not reasonable. Project participants are requested to change the start of the crediting period. Therefore, pls. modify the relative emission reduction figures in A.4.4 and B.6.4 of the PDD and the starting date in A.4.4 and C.2.2.1. of the PDD. | C.2.2. | The start of crediting period has been set as October 2008, which is estimated upon the production time of project and progress of CDM project. The crediting plan and emission reduction figures in A4.4 and B6.4 are modified accordingly. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the local auditor. |
| <u>Corrective Action Request No.12.</u> Please refer to the Compensation Standards in the revised PDD and add the reference. | D.1.2. | The footnote of the compensation standards is given in the revised PDD, which is footnote No.9. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the local auditor. |

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|--|-----------------------|--|---|
| <u>Corrective Action Request No.13.</u> The PDD should mention that no trans-boundary environmental impacts are related with the project activity. | D.1.4. | No transboundary impact caused by the project is clearly stated in part D of revised PDD. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the local auditor. |
| <u>Corrective Action Request No.14.</u> The PDD should inform the exact day of the stakeholder consultation and it has to be described how the stakeholders were identified and how all of them have been informed by adequate media. | E.1.1. | The exact date of implementing stakeholder consultation is September 8 th 2006, which is stated in revised PDD. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the local auditor. |
| CRs | | | |
| <u>Clarification Request No. 1.</u> It should be informed in the PDD whether electricity imports occur from other electricity grids to the Central China grid. If this is the case, the parameter "electricity imports" has to be included in B.6.2. of the PDD (in this case see B.6.2.1.). | B.6.2.11. B.6.2.12 | No electricity imports will occur from other grids to the CCPG, which is stated in B.3 part. | <input checked="" type="checkbox"/> This issue has been verified in the revised PDD by the local auditor. |
| <u>Clarification Request No. 2.</u> A summary of the received stakeholder comments should be provided to the audit team. | E.2.1. | The summary of received comments has been provided to the audit team. | <input checked="" type="checkbox"/> The summary and the statistic of the comments from the stakeholders have been verified by the local auditor. |

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Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

| Clarifications and / or corrective action requests by validation team | Id. of CAR/CR | Explanation of Conclusion for Denial |
|---|---------------|--------------------------------------|
| - | - | - |


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Annex 2: Information Reference List

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| Reference No. | Document or Type of Information |
|---------------|--|
| 1. | Project Design Document for CDM project “China Changtanghe Rundle Small Hydropower Project”, Version 01, dated on 20/07/2007 |
| 2. | Approved consolidated baseline methodology AMS-I.D /Version 12 |
| 3. | Participant list of on-site interview, signed on 28 th September, 2007 |
| 4. | <p>On-site interviews at the project site at Dongkou County, Shaoyang City, Hunan Province, P. R. China, conducted on 28th September, 2007 by audit team from TÜV-SÜD.</p> <p>Validation team:</p> <p>Ms. Li Xuemei CDM Auditor, Jiangsu TÜV Product Service Ltd., Guangzhou Branch Mr. Gu Liran CDM Auditor Trainee, Jiangsu TÜV Product Service Ltd., Guangzhou Branch</p> <p>Interviewed persons:</p> <p>Mr. Li Jinbao Chairman of the board, Dongkou Zhexiang Hydroelectric Co., Ltd. Mr. Li Feng Project Officer, Hunan CDM Project Service Center Mr. Zhang Qingyou GM Assistant, Dongkou Zhexiang Hydroelectric Co., Ltd. Ms. Yang Junyi Project Manager, Dongkou Zhexiang Hydroelectric Co., Ltd.</p> |
| 5. | ”Preliminary Design Report of Shuangjiangqiao, Shuanlongqiao, Hebaotang Rundle Hydro PowerStation in Hunan Province”, by Nanping Institute of Water Conservancy - Hydropower Survey and Design, December 2004. |
| 6. | “Approval of Preliminary Design Report of Shuangjiangqiao, Shuanglongqiao, Hebaotang Rundle Hydro PowerStation”, by Shaoyang Department of Water Resources, #02 [2006], Date: 19 th January, 2006. |
| 7. | “Environmental Impact Assessment for Changtanghe Rundle Small Hydropower Project”, by Shaoyang Environmental Protection Research Department, in April 2005. |
| 8. | “EIA Approval of Dongkou County Changtanghe Rundle Hydropower Station”, #06[2005], by Dongkou County Depart of Environmental Protection, 30 th April, 2005. |

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| Reference No. | Document or Type of Information |
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| 9. | “Agreement of Feasibility of Shuangjiangqiao, Shuanglongqiao and Hebaotang Hydropower Station”, by Development and Planning Bureau of Dongkou County, #62[2004], Date: 25 th May, 2004. |
| 10. | “Financial Auditing Report”, by Southern Accountants Ltd. (Shaoyang, Hunan Province), 15 th May, 2007 |
| 11. | Cooperation Business License (from 8 th March, 2005 to 8 th March 2035), Dongkou County Zhexiang Hydroelectric Co., Ltd. Deputy Person: Mr. Li Jinbao. |
| 12. | “Hunan Province Contract of Water Conservancy and Hydropower Designing”, #16[2006], mission: supervision on Dongkou County Changtanghe Rundle Small Hydropower Project, Party A: Dongkou County Zhexiang Hydroelectric Co., Ltd.; Party B: Shaoyang Supervision of Water Conservancy and Hydropower Development and Construction Co., Ltd., Date: 20 th June, 2006. |
| 13. | “Notice of Adjusting the on-grid Tariff of Small Hydropower Station”, by Dongkou County Department of Development and Reform, #44[2007], 25 th May, 2007 (the on-grid power tariff is ¥0.23) |
| 14. | “Letter of Intent for Loan” from Construction Bank of China, the total investment is RMB 47,200,000; the enrolled capital is RMB 22,000,000; the loan is RMB 25,000,000. Date: 10 th March, 2005. |
| 15. | “Landscape Usage Contract”, Party A: Shuanglong Village, Yanshan Town; Party B: Dongkou Zhexiang Hydroelectric Co., Ltd.; Witness: The People’s Government of Yanshan Town, Dongkou County. Date: 24 th January, 2005. |
| 16. | “Order of start working”, by Shaoyang Supervision of Water Conservancy and Hydropower Development and Construction Co., Ltd., date: 28 th June, 2006. |
| 17. | “Application of Connecting to the Power Grid”, by Dongkou County Zhexiang Hydroelectric Co., Ltd., date: 24 th January, 2005 |
| 18. | “Contract of PDD Compiling”, Project name: Dongkou County Changtanghe Rundle Small Hydropower Project, Party A: Dongkou County Zhexiang Hydroelectric Co., Ltd., Party B: Xiangke Clean Development Co., Ltd., Date: 9 th August, 2007. |
| 19. | “Contract of Purchase and Sale of Machines”, Party A: Hunan Xuefeng Mechanical & Electrical Equipment Co., Ltd., Party B: Dongkou |

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| Reference No. | Document or Type of Information |
|---------------|---|
| | County Zhexiang Hydroelectric Co., Ltd., 2 nd March, 2006. |
| 20. | Certificate for the Use of State-owned Land, April, 2005. |
| 21. | "Report of Water & Soil Protection on Hunan Province Dongkou County Shuanglongqiao Hydropower Station", by Fuzhou Water & Soil Protection, Engineering Supervision and Consultant Co., Ltd., #009[2005], August, 2005. |
| 22. | "Implement of Soil & Water Conservation", approved by the Soil and Water Conservation Station of Dongkou County, on 9 th December, 2005. |
| 23. | Directorate Meeting's Summary of Dongkou County Zhexiang Hydroelectric Co., Ltd., decided to apply for the CDM Project, on 16 th February, 2005. |
| 24. | CDM Monitoring Manual of Dongkou County Changtanghe Rundle Hydropower Station, CDM Training Records, date: 21 st August, 2005. |
| 25. | "Questionnaire on Stakeholders" (30 pcs), in September, 2006. |
| 26. | "Agreement of Feasible Report of Shuangjiangqiao, Shuanglongqiao and Hebaotang Hydropower Station", by Dongkou County Department of Development and Reform, #91[2007], date: 3 rd September, 2007. |
| 27. | Specifications on land requisition and resettlement design for construction of water resources and hydropower project, published by the Ministry of Water Resources of the People's Republic of China, file No., SL 290-2003, implemented on 1 st December, 2003 |
| 28. | The project progress, issued by Dongkou Zhexiang Hydroelectric Co., Ltd., dated Sep. 2007 |
| 29. | Economic Evaluation Code for Small Hydropower Projects, SL16-95, implemented on 1 st July, 1995 |
| 30. | The notice of the fossil fuel power plant less than 135MW is forbidden, issued by the general office of the state council, dated 15 th April, 2002 |
| 31. | Investigation results on Hunan hydro powers above 15MW, issued by the Institute of Water Conservancy - Hydropower Survey and |

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| Reference No. | Document or Type of Information |
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| | Design Hunan province, dated 31 st Oct., 2006 |
| 32. | The summary and the statistic of the comments from the stakeholders, dated 12 th Nov. 2006 |
| 33. | LoA of Wienerberger AG, dated 29 th April 2008 |
| 34. | Letter of Approval for China Changtanghe Rundle Small Hydropower Project As a Clean Development Mechanism Project by National Development and Reform Commission of the People's Republic of China, No. 1018, dated Mar, 2008 |
| 35. | Statement on The Modalities of Communication with the Executive Board and the UNFCCC Secretariat |
| 36. | Letter of Intent for project developing, signed by Dongkou Zhexiang Hydroelectric Co., Ltd. and Hunan CDM Service Center, dated 10 th Jan., 2006 |
| 37. | The training records of CDM project and monitoring knowledge, 20 th Aug. 2005-21 st Aug. 2005 |
| 38. | CDM training records, dated 12 th -13 th , May 2007. |
| 39. | Project Design Document for CDM project “China Changtanghe Rundle Small Hydropower Project”, Version 04, dated on 05/08/2008 |