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# Validation Report

**Carbon Asset Management Sweden AB**

## VALIDATION OF THE CDM-PROJECT: CHINA CHANGNIPING HYDROPOWER PROJECT

REPORT NO. 988801

**2008, January 11**

TÜV SÜD Industrie Service GmbH

Carbon Management Service
Westendstr. 199 - 80686 Munich – GERMANY

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**Subject:** Validation of a CDM Project

| **Accredited TÜV SÜD Unit:** | **TÜV SÜD Contract Partner:** |
|---|---|
| TÜV SÜD Industrie Service GmbH<br>Certification Body "climate and energy"<br>Westendstr. 199 - 80686 Munich<br>Federal Republic of Germany | Jiangsu TÜV Product Service Shenzen Branch<br>Room A01, B01 & B02, 28th Floor Anlian Building<br>No. 4018 Jintian Road, Futian District<br>518026 Shenzhen<br>P.R. China |
| **Client:**<br>Carbon Asset Management Sweden AB<br>Drottninggatan 92-94<br>111 36 Stockholm<br>Sweden | **Project Site(s):**<br>Wushui River, Changniping Village, Gongping Town, Zhijiang County, Huaihua City, Hunan Province, P.R. China. |

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

| **First PDD Version:** | | **Final PDD version:** | |
|---|---|---|---|
| Date of issuance: | 2007-01-25 | Date of issuance: | 2007-08-05 |
| Version No.: | 6.0 | Version No.: | 7.0 |
| Starting Date of GSP | 2007-02-20 | | |

| | |
|---|---|
| **Estimated Annual Emission Reduction:** | 78 432 tons $CO_{2e}$ |

| **Assessment Team Leader:** | **Further Assessment Team Members:** |
|---|---|
| Dr. Sven Kolmetz | Carl Zhou |

**Summary of the Validation Opinion:**

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

☐ 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 Changniping 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),
- The applied approved methodology
- The technical environment of the project (technical scope)
- Internal and national standards on monitoring and QA/QC
- Technical guideline and information on best practice

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

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

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

# 2 METHODOLOGY

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

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

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

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

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

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

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

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

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

## 2.1 Appointment of the Assessment Team

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

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

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

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

| Name | Qualification | Coverage of technical scope | Coverage of sectoral expertise | Host country experience |
|---|---|---|---|---|
| **Dr. Sven Kolmetz** | **ATL** | ☑ | ☑ | ☑ |
| **Carl Zhou** | **GHG-A** | ☑ | ☑ | ☑ |

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

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

## 2.2 Review of Documents

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

## 2.3 Follow-up Interviews

In the period of March 20, 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. Ji Lixin | Zhenghe Hydropower Development of Zhijiang County Co., Ltd. |
| Mr. Liu Minghua | Zhenghe Hydropower Development of Zhijiang County Co., Ltd |
| Mr. Qiu Ping | Zhenghe Hydropower Development of Zhijiang County Co., Ltd |
| Mr. Lou Pingan | Zhijiang County committee |
| Mr. Hou Qinghai | Zhijiang County government |
| Mr. You Yuejin | Zhenghe Hydropower Development of Zhijiang County |

| | |
|---|---|
| | Co., Ltd |
| Mr. Yang Yuying | Zhenghe Hydropower Development of Zhijiang County Co., Ltd |
| Mr. Yang Xiaoming | Zhenghe Hydropower Development of Zhijiang County Co., Ltd |
| Mr. Pu Xiansong | Zhijiang county resettlement bureau |
| Mr. Zhang Liangyou | Zhijiang county development and reform committee |
| Mr. Wang Fei | Huaihua city development and reform committee |
| Mr. Peng Zufang | Zhijiang county Luojiu town |
| Mr. Peng Mingfu | Zhijiang Gongping town Changniping village |
| Mr. Hou Wensheng | Huaihua city environment protection institute |
| Mr. Zhang Zhongsong | Zhijiang county Loujiu town |
| Mr. Xie Lei | Carbon Asset Management Co. Ltd |
| Miss Xuman | Carbon Asset Management Co. Ltd |
| Miss Yang Mingming | Carbon Asset Management Co. Ltd |
| Mr. Xu Hengzhi | Hunan province CDM centre |
| Mr. Zhang Haiwen | Hunan province CDM centre |
| Mr. Li Leyong | Hunan province CDM centre |
| Mr. Bjorn Odenbro | Carbon Asset Management Co. Ltd |
| Miss. Susanne Haefeli Hestvik | Carbon Asset Management Co. Ltd |

## 2.4 Resolution of Clarification and Corrective Action Requests

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

## 2.5 Internal Quality Control

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

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

# 3 SUMMARY OF FINDINGS

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

**History of the validation process**

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

**Project description**

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

China Changniping Hydropower is a low head, new-build hydropower project, locating in the Wushui River, Changniping Village, Gongping Town, Zhijiang County, Huaihua City, Hunan Province, P.R. China. The project is developed by Zhenghe Hydropower Development of Zhijiang County Co., Ltd and constructed by the experienced Zhejiang Jinhua Shengtai Hydropower Development Construction Co., Ltd, Zhejiang Jiangneng Hydropower Construction Co., Ltd and Hunan Huaihua Hydropower Engineering Co., Ltd.

The purpose of the project is to generate electricity by using Wushui River water resources to alleviate electricity shortage in Central China. The project will contribute to the reduction of GHG emission by displacing part of the electricity from the fossil fuel fired power plants of the CCPG.

**Findings**

In total the assessment team expressed 16 Corrective Action Requests.

The required documents (English version of the IRR calculation excel sheet, benchmark) have been submitted to the DOE and the more formal aspects of the proposed project [CAR 1, 3 – 8] have

been verified according to the PDD finally. Hence, most of the CARs were resolved very easily.

The required changes have been made:

- The specific location in longitude and latitude has been provided [CAR 2]
- The evidences for emission factors and electricity generation in the CER calculation are revised in the last version of the PDD [CAR 9, 10]
- The evidence for the IRR calculation has been delivered to DOE. [CAR 11]
- The stakeholder process [CAR 16] and more detailed information regarding the monitoring of the emission reductions are all verified and proved by evidence. [CAR 13, 14].

Above all, the CAR´s are resolved accordingly.

**Baseline calculation**

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

**Additionality**

The additionality has been evidenced by investment analysis. The benchmark used (IRR) and the IRR calculation will be uploaded together with the PDD. The consideration of CDM has been evidenced by a support letter of application for CDM from Changniping hydro power to Zhijiang county science and technology bureau, dated on July 8 2005, and the approval of application for CDM of the Changniping hydro power plant to Zhijiang county science and technology bureau, dated on July 22, 2005.

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

# 4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

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

The following table presents all key information on this process:

| | |
|---|---|
| **webpage:**<br>http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=2597&Ebene1_ID=26&Ebene2_ID=777&mode=1 | |
| **Starting date of the global stakeholder consultation process:**<br>2007-02-20 | |
| **Comment submitted by:**<br>none | **Issues raised:**<br>- |
| **Response by TÜV SÜD:**<br>- | |

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# 5 VALIDATION OPINION

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

China Changniping Hydropower Project.

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

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

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

Munich, 2008 – 01 - 11

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

Munich, 2008 - 01 - 11

Assessment Team Leader

# ANNEX 1: VALIDATION PROTOCOL

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## Table 2 Resolution of Corrective Action and Clarification Requests

| Clarifications and corrective action requests by validation team | Ref. to table 1 | Summary of project owner response | Validation team conclusion |
|---|---|---|---|
| Yes. The project is described transparently and the project activities described have been proven during on-site audit.<br>**Corrective Action Request No.1.**<br>Please provide the construction information of the project. E.g. the development party, construction party, the starting date, the finishing date of the planning and the current status of the project.<br>The data of the annual net electricity generation should be revised according to the preliminary report. | A.2.1.. | The project is developed by Zhenghe Hydropower Development of Zhijiang County Co., Ltd and constructed by the experienced Zhejiang Jinhua Shengtai Hydropower Development Construction Co., Ltd, Zhejiang Jiangneng Hydropower Construction Co., Ltd and Hunan Huaihua Hydropower Engineering Co., Ltd.<br>The project will be operational in August 2007 respectively and the main body engineering of the project will be completed in December 2007.<br>The annual net electricity generation of the project is forecast to be 80 440 MWh with an annual utilization time of 4 320 h.<br>The above mentioned points are described in the revised PDD. | ☑ |

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| The project location could be clearly identified according to the PDD. The project activity is located at the Changniping Village, Gongping Town, Zhijiang County, Huaihua City, Hunan Province, P.R. China<br>**Corrective Action Request No.2.**<br>The longitude and latitude of the location of the project described in the PDD should be revised according to the preliminary design report. | A.4.1.1. | The longitude and latitude of the location of the project is corrected to 109°50′30 E and 27°12′30 N in the revised PDD, according to Preliminary Design Report.<br>**DOE´s First response:**<br>If the coordinates are checked by Google Earth the result is some km away from the river and 39 km from Huaihua City. This should be clarified again.<br>**Answer:**<br>The project site is 12 km away from Huaihua City. The Huaihua City is very bigger. So it is maybe different in the distance. The Zhijiang County is approximately 39 km away from Huaihua City. | ☑ |
| **Corrective Action Request No.3.**<br>Please describe the information of the manufactures and the developer. E.g. Is it a well-known manufacturer? Is the developer experienced and well-known? Does he install a lot of other projects already? | A.4.3.1. | The main equipments, such as the turbines and electricity generators, are made in China. The manufacturers are well-known in the Chinese hydropower equipment manufacture market.<br>It is the first time for the project owner to develop hydropower plant. However, the president of the project developer is experienced in small hydropower development. The construction parties are experienced in equipment installation.<br>The above mentioned points are described in the revised PDD. | ☑ |
| **Corrective Action Request No.4.**<br>The data of annual net electricity generation should be revised according to the preliminary report.<br>The information of the transformer and the type of the generator and the turbine should be described in the section. | A.4.3.5 | The net generated electricity of the project is revised to 80 440 MWh. The information of the transformer and the type of the generator and the turbine are described in Table 1 of Section A.4.3 in the revised PDD. | ☑ |

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| **Corrective Action Request No.5.**<br>Please describe if the technology applied by the project activity results in a significantly better performance than any commonly used technologies in the host country in this section. | A.4.3.6. | The power generation technology for the project is commonly used in China. Thus, the technology applied by the project does not result in a significantly better performance than any other commonly used hydro power technologies in China. It is specified in Section A.4.3 in revised PDD. | ☑ |
| **Corrective Action Request No.6.**<br>Please specify whether the project needs extensive initial training and maintenance efforts in the PDD | A.4.3.8 | The professional technicians and engineers will train the hydropower plant staffs about the monitoring procedures, operation regulation, maintenance procedures and other required knowledge regarding the hydropower plant before the start of operation of the project. | ☑ |
| **Corrective Action Request No.7.**<br>The information on the demand and requirements for training and maintenance should be described in the section or be delivered to the DOE. | A.4.3.9 | The training and maintenance information will be delivered to DOE in a week. | ☑<br>Has been verified by the local auditor, Carl Zhou. |
| The planning schedule in the past and for the future was clearly described by the project owner during the audit. The main contracts for the construction of the hydro power have already been signed and equipments have been purchased. The risk for delays is the lack of the financing.<br>**Corrective Action Request No.8.**<br>The time schedule of the implementation of the project should be included into the PDD. | A.4.3.10 | The first generator of the project will be operational in July, 2007 and the second will be operational in August, 2007. It is described in Section A.4.3 in revised PDD.<br>The evidences for the consideration of CDM before start of construction include the LoI of CDM Project Development, the CDM application Letter of Changniping Hydropower Plant, the Approval Letter of CDM Application of Changniping Hydropower Plant. The information is included in the revised PDD. All these documents have been provided to DOE. | ☑<br>Has been verified by the local auditor. |

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| Yes. The form is correctly applied according to the version 03.1 of CDM PDD template.<br>**Corrective Action Request No.9.**<br>The CER calculation table in English should be delivered to the DOE. | A.4.4.1 | The emission reductions calculation excel document will be delivered to DOE and will be uploaded together with PDD in UNFCCC website for requesting registration.<br>**DOE´s First response:**<br>Has been delivered to the DOE, but the English version is not available. The grid factor officially published by the NDRC is slightly less than the grid factor used for the calculation of the emission reductions (0,94445 instead of 0,95206). Please explain the difference and justify how this can be considered to be conservative.<br>**Answer:**<br>The NDRC updated the grid factor on 9 Aug, 2007. The difference between the newly result and the old one is mainly due to the oxidation factor of IPCC2006 is used in calculation and all these data are 100%. Another difference is the power supply efficiency values of the most advanced commercialized generators issued by NDRC is higher than the previous ones. So, these cause the grid factor increasing. The updated grid factor calculation is included in the revised PDD. The English version is also delivered to the DOE together with the revised PDD. | ☑ |

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| **Corrective Action Request No.10.**<br>Please describe the baseline scenario according to the methodology in this section. The alternative scenario should not be described in this section. Please copy the scenario consideration to section B.5.<br>The evidence to prove the generation electricity by the proposed project will be supplied to CCPG should be delivered to the DOE. | B.4.1. | The evidence to prove the generation electricity by the project will be supplied to CCPG has been delivered to DOE.<br>The scenario description is corrected in the revised PDD. | ☑<br>The scenario description in B.4. is not necessary according to ACM0002 vers. 6. Scenarios including other renewable sources are not applicable as these renewable sources face higher barriers than hydro power plants. |
| **Corrective Action Request No.11.**<br>The total investment, the IRR with/without CERs revenue and the sensitivity analysis should be revised according to the preliminary design report.<br>The mentioned available proofs for the utilized data should be delivered to the DOE. | B.5.12. | The IRR calculation result is corrected in the revised PDD. The data used to calculate the IRR is derived from the Preliminary Design Report and additional investment list. The IRR calculation excel document as well as the additional documentary evidence is submitted to the DOE. | ☑<br>Has been verified by the local auditor |
| **Corrective Action Request No.12.**<br>The crediting period will start after the registration of this project, so the starting date of the crediting period and the estimated emission reductions of the year and further chapters of the PDD have to be revised. | B.6.4.3. | It is corrected in the related section in revised PDD. | ☑ |

| | | | |
|---|---|---|---|
| Yes. The EGy is the parameter that shall be monitored and recorded. The electricity connected to the grid is automatically measured and recorded by the computers. The measurement data for the electricity will be recorded electronically. To ensure the accuracy of data, electricity sales invoices by local grid will also be obtained as an additional check.<br>**Corrective Action Request No.13.**<br>• An equipment of measurement has to be installed to ensure the availability of back-up data. It has to be clarified that only the net electricity will be monitored finally. | B.7.1.1. | The meter (Master Meter) and backup meter (Backup Meter) of Master Meter will be installed at the high voltage side of the transformer. The detailed monitoring procedure is specified in the revised PDD and described in the Monitoring Manual.<br>The accuracy of Master Meter is 0.2 S, and they will be calibrated at least once a year. The monitoring information is corrected in the revised PDD. | ☑<br>According to the quoted standard DL/T448-2000 the accuracy is 0.2 S and the calibration has to be annually. |
| **Corrective Action Request No.14.**<br>No, section B.7.2 mentioned in Annex 4 is not sufficient. Please include a principal diagram of the meter positions. | B.7.2.4. | A principal diagram of the meter positions is specified in Section B.7.2 in revised PDD. | ☑ |

| | | | |
|---|---|---|---|
| Referred to the EIA and the approval of EIA, the project will create no negative environmental impacts.<br>**Corrective Action Request No.15.**<br>The detailed information of resettlement and compensation should be described in the PDD. | D.1.3. | The project involves 186 migrants which have to be moved from a low elevation to a high one. All migrants are compensated financially and with farm land in accordance with the government policy, i.e. Zhizheng No. 16[2005].<br>**DOE´s First response:**<br>Please specify how the stakeholders have been chosen and why there are only 50 questionnaires if there are 186 migrants. What kind of media have been used to announce the project and the stakeholder process?<br>**Answer:**<br>The project owner pasted bulletins at markets around the project site to inform the local stakeholders before distributing the questionnaires. Furthermore, the project owner also entrusted the local government to distribute the questionnaires to local stakeholders, especially for the migrants.<br><br>The resettlement only involves 29 households, so the 50 questionnaires are representative. Furthermore, all the migrants and land have been compensated in line with national policies, the proof document from local government has been provided to DOE. | ☑<br>Has been verified by the local auditor. |

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| **Corrective Action Request No.16.**<br>The project owner carried out a survey to stakeholders in form of questionnaire on Changniping Hydropower Plant Project. Geographic area of the survey involved Gongping Town and Luojiu Town of Zhijiang County. It included local residents as well as government officials and migrations.<br>The survey date should be indicated in the PDD. | E.1.1. | The survey date is August 2005. | ☑ |

# ANNEX 2: INFORMATION REFERENCE LIST

| Reference No. | Document or Type of Information |
|---|---|
| 1 | Final Project Design Document for CDM project "Changniping Hydro Power CDM Project", finalized on Jan. 28 2007, submitted in Feb. 20 2007 |
| 2 | Consolidated baseline methodology for grid-connected electricity generation from renewable sources, version 06 |
| 3 | Tool for the demonstration and assessment of additionality, version 03 |
| 4 | Participant list of on-site interview, signed on March 20 2007 |
| 5 | On-site interviews and inspection at the office conducted on March 20 2007 by validators of TÜV SÜD.<br><br>Validation team:<br>Carl Zhou Jiangsu TUV Product Service Ltd.<br>Interviewed persons:<br>Mr. Ji Lixin Zhenghe Hydropower Development of Zhijiang County Co., Ltd. General manager<br>Mr. Liu Minghua Zhenghe Hydropower Development of Zhijiang County Co., Ltd Leader of financial dept.<br>Mr. Qiu Ping Zhenghe Hydropower Development of Zhijiang County Co., Ltd Leader of engineering dept.<br>Mr. Lou Pingan Zhijiang County committee Vice leader<br>Mr. Hou Qinghai Zhijiang County government Vice leader<br>Mr. You Yuejin Zhenghe Hydropower Development of Zhijiang County Co., Ltd Vice general manager<br>Mr. Yang Yuying Zhenghe Hydropower Development of Zhijiang County Co., Ltd Leader of ADM<br>Mr. Yang Xiaoming Zhenghe Hydropower Development of Zhijiang County Co., Ltd Manager<br>Mr. Pu Xiansong Zhijiang county resettlement bureau Vice leader<br>Mr. Zhang Liangyou Zhijiang county development and reform committee Vice leader<br>Mr. Wang Fei Huaihua city development and reform committee Leader of dept.<br>Mr. Peng Zufang Zhijiang county Luojiu town Leader |

| Reference No. | Document or Type of Information |
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| | Mr. Xiao Dianchun Zhijiang county Gongping town Leader<br>Mr. Peng Mingfu Zhijiang Gongping town Changniping village resettlement people<br>Mr. Hou Wensheng Huaihua city environment protection institute professional<br>Mr. Zhang Zhongsong Zhijiang county Loujiu town resettlement people<br>Mr. Xie Lei Carbon Asset Management Co. Ltd project leader<br>Miss Xuman Carbon Asset Management Co. Ltd Assistant<br>Miss Yang Mingming Carbon Asset Management Co. Ltd Business Manager<br>Mr. Xu Hengzhi Hunan province CDM centre project leader<br>Mr. Zhang Haiwen Hunan province CDM centre general manager<br>Mr. Li Leyong Hunan province CDM centre project leader<br>Mr. Bjorn Odenbro Carbon Asset Management Co. Ltd General manager in Beijing<br>Miss. Susanne Haefeli Hestvik Carbon Asset Management Co. Ltd CTO |
| 6 | The compensative program of resettlement for the Changniping hydropower project, dated on June. 1, 2005, Dongzu autonomous county of Zhijiang people's government |
| 7 | The proof of compensation for farmland, dated on May. 28, 2005, Dongzu autonomous county of Zhijiang national territory resources bureau. |
| 8 | The proof of compensation due to the new built road around the reservoir, dated on May. 20, 2005, Dongzu autonomous county of Zhijiang national territory resources bureau. |
| 9 | The extra cost for dam and workshop of basic geology cause ,dated on August 3, 2005, Engineering Supervision Department of Changniping hydropower project in Huaihua hydropower consultation group. |
| 10 | The notice of basic facility of restoration compensative standard suggestion for Changniping hydropower project,dated on June.16, 2005, the work leading group in the Zhijiang hydropower of Dongzu autonomous county. |
| 11 | The notice of building road for Gongping village ,dated on Sep. 1, 2005, the villagers of Shangxiaaitou of gongping village. |
| 12 | The contract of water-turbine generator set and attached equipment in Changniping hypower of Zhijiang , Hunan province dated on January 24, 2005, Zhijiang Zhenghe hydro power development Co. Ltd |
| 13 | The warrant of Hunan Province environmental protection bureau,dated on Dec.27, 2004, Hunan Province environmental protection bureau. |

| Reference No. | Document or Type of Information |
|---|---|
| 14 | The approval of environmental impact report for Changniping hydropower project , dated on April 7,2006. Hunan Province people's government. |
| 15 | The approval of about agreeing the submergence processing and resettlement Implementation report for Changniping hydropower project, dated on Dec. 21, 2005 people's government of Huaihua city. |
| 16 | The approval of conservation of water and soil program for Changningping hydropower project .dated on Sep.9,2004 water conservancy bureau office of Huaihua city. |
| 17 | The examines of capital report for Zhijiang Zhenghe hydropower development Co. Ltd., dated on Nov 23,2005 ,Hunnan Fangxing accounting firm Co.Ltd. |
| 18 | Loan contract with the agricultural bank of china,dated on March 10,2006, Zhijiang Zhenghe hydro power development Co. Ltd , |
| 19 | Agreement connected to the grid with Zhijiang electric power Co.Ltd of Huaihua electric power group.dated on August 8,2005 , Zhijiang Zhenghe hydro power development Co. Ltd. |
| 20 | The purchasing contract of Industry and mining product with Shandong LunengTaishan electric equipment Co.Ltd. dated on April 10,2006 Zhijiang Zhenghe hydro power development Co. Ltd. |
| 21 | The notice of Changniping hypower project starts ,dated on Sep.1,2005, Changniping hydro power supervision department and Huaihua water conservation electric power consultation Co.Ltd |
| 22 | Monitor management handbook of Changningping hydropower station.Hunnan province CDM project service center. |
| 23 | The preliminary design report of Changningping hydropower project .dated on Dec.2004, water conservation and electricity survey design research institute of Yiyang city ,Hunnan province. |
| 24 | The evidence of the surface area of full reservoir level, dated on June 18 2005, Zhijiang county land resources bureau |
| 25 | The approval of the occupied lands due to the project, dated on April 7 2006, Hunan province people's government |
| 26 | The evidence of the stakeholders comments meeting |
| 27 | The evidence of the increased investment costs |
| 28 | The evidence of consideration for CDM project in the earlier stage of the project: the support letter of application CDM about Changniping hydro power to Zhijiang county science and technology bureau, dated on July 8 2005, the approval of application CDM about Changniping hydro power to Zhijiang county science and technology bureau, dated on July 22 2005. submitted on Sept. 3 2007 |

| Reference No. | Document or Type of Information |
|---|---|
| 29 | Final Project Design Document for CDM project "Changniping Hydro Power CDM Project", finalized on Aug. 5th, 2007 |
| 30 | Power Purchase Agreement (PPA) signed between Zhijiang electric Power Co. Ltd of Huaihua electric power group and project owner. Dated on 16 July 2004. |
| 31 | The IRR calculation spreadsheet in the form of excel and pdf |
| 32 | Investigation report on hydropower plants with installed capacity of over 15MW constructed since 2002 in Hunan province, Hunan hydro power design institute |
| 33 | China water resources yearbook (2006) |
| 34 | Note on implement methods of various power tariff (No. 101 shuidiancaizi [1987], ministry of water resources and electric power, state economic committee and state price bureau |
| 35 | Notice on standardizing electricity tariff management ( No. 70 Jijiage[2001], state planning committee. |
| 36 | Other data sources in the PDD |