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# Validation Report

**CARBON ASSET MANAGEMENT SWEDEN AB**

## VALIDATION OF THE CDM-PROJECT: NANSHA HYDRO POWER PROJECT IN YUNNAN PROVINCE CHINA.

REPORT NO. 1053560

**2008, August 7**

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<br>80686 Munich<br>Germany | TÜV SÜD Industrie Service GmbH<br>Carbon Management Service<br>Westendstr. 199<br>80686 Munich<br>Germany |
| **Client:** | **Project Site(s):** |
| Carbon Asset Management Sweden AB<br>Drottninggatan 92 – 94, S - 111 36<br>Stockholm, Sweden | Yuanyang County Honghe Hani & Yi Autonomous State Yunnan Province,<br>People's Republic of China |

**Project Title:** Nansha Hydro Power Project in Yunnan Province China.

| **Applied Methodology / Version:** ACM0002 version 06 | **Scope(s):** 1 |
|---|---|

| **First PDD Version:** | | **Final PDD version:** | |
|---|---|---|---|
| Date of issuance: | 2007-06-21 | Date of issuance: | 2008-07-25 |
| Version No.: | 1.0 | Version No.: | 02 |
| Starting Date of GSP | 2007-07-12 | | |

**Estimated Annual Emission Reduction:** 519 768 tons $CO_{2e}$

| **Assessment Team Leader:** | **Further Assessment Team Members:** |
|---|---|
| Dr. Sven Kolmetz | Rencheng Xiong<br>Karin Wagner<br>Khalid Mahmood |

**Summary of the Validation Opinion:**

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

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

## Abbreviations

| | |
|---|---|
| **ACM** | Approved Consolidated Methodology |
| **AM** | Approved Methodology |
| **BM** | Build Margin |
| **CAR** | Corrective Action Request |
| **CDM** | Clean Development Mechanism |
| **CER** | Certified Emission Reduction |
| **CM** | Combined Margin |
| **CR** | Clarification Request |
| **DNA** | Designated National Authority |
| **DOE** | Designated Operational Entity |
| **EB** | Executive Board |
| **EF** | Emission Factor |
| **EIA / EA** | Environmental Impact Assessment / Environmental Assessment |
| **ER** | Emission reduction |
| **FSR** | Feasibility Study Report |
| **GHG** | Greenhouse gas(es) |
| **IRL** | Information Reference List |
| **IRR** | Internal Rate of Return |
| **KP** | Kyoto Protocol |
| **MP** | Monitoring Plan |
| **NDRC** | National Development and Reform Commission |
| **NGO** | Non Governmental Organisation |
| **OM** | Operational Margin |
| **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:

Nansha Hydro Power Project in Yunnan Province China

## 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-webpag 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 (for further information see www.vvmanual.info), 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** | ☑ | ☑ | ☑ |
| Rencheng Xiong | A | ☑ | ☑ | ☑ |
| Karin Wagner | T | ☑ | ☑ | |
| Khalid Mahmood | T | ☑ | ☑ | |

**Dr. Sven Kolmetz** is physicist and head of the department "TÜV SÜD 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.

**Mr. Rencheng Xiong** is a GHG auditor for environmental management systems at TÜV SÜD China. He is based in Shenzhen. He has received training in the CDM validation process and participated already in several CDM project assessments.

**Karin Wagner** is an auditor trainee at the "Carbon Management Service" department of TÜV SÜD Industrie Service GmbH in Munich, Germany. She holds a M.Sc. in geological sciences and has gathered experience in environmental consulting before joining TÜV SÜD. She has received training in the CDM validation process and participated in several CDM project assessments.

**Khalid Mahmood** is a GHG Auditor (Trainee) in "TÜV SÜD Carbon Management Service" located in the head office of TÜV SÜD Industrie Service GmbH in Munich, Germany. He is environmental scientist and responsible for the carbon market of TÜV SÜD in Middle East. He recently entered in CDM and JI market. He has got extensive training on all aspects of the flexible mechanism.

## 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 August 21, 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. Wang Hualing | Honghe Guangyuan Hydro Power Development Co. Ltd. |
| Mr. Liu Haijun | Honghe Guangyuan Hydro Power Development Co. Ltd. |
| Mr. Ganjunyi | Honghe Guangyuan Hydro Power Development Co. Ltd. |

## 2.4 Resolution of Clarification and Corrective Action Requests

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

## 2.5 Internal Quality Control

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

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

# 3 SUMMARY OF FINDINGS

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

**History of the validation process**

The audit team has been provided with a PDD in June 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 April 2008 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 PDD could be verified during the on-site audit:

Nansha Hydro Power Project in Yunnan Province China is a hydro power plant with a new reservoir in Yuanyang County of Honghe Hani & Yi Autonomous State Yunnan Province China. The project is to adopt three 50MW water turbines and related generators and the annual generated electricity is 702,280MWh with annual operation hours of 4,682h, (the annual grid-connected electricity is 616,314MWh). The electricity will be connected to Yunnan Province Power Grid, finally to South China Power Grid through 110KV transmission lines. The surface area at full reservoir level of the proposed project is 8,938,000 m2 and the installed capacity is 150MW (3×50MW), so the power density of the proposed project is 16.8W/ m2 .Electricity generated by the proposed project will displace part of the electricity generated by South China Power Grid which is dominated by fossil fuel-fired power plants, and thus greenhouse gas (GHG) emission reductions could be achieved. It is expected that the proposed project activities will generate annual emission reductions of 519, 768 tCO2e in the first seven years.

**Findings**

In total the assessment team expressed 10 Corrective Action Requests and 9 Clarification request. The required documents (English version of the IRR calculation excel sheet, benchmark) have been submitted to the DOE and other formal aspects of the proposed project (project location, emission reduction etc.) have been verified according to the PDD.

The CAR1, CAR2 and CAR3 were asked for inconsistency of annual emission reduction, clear identification of the project site and for time schedule of the implementation of the project. The CAR4, CAR5 and CAR6 were related to evidences of the similar wind power projects in China, correction of the annual grid- connected Electricity units and about the application of the Latest version of Water Resources Review of the People's Republic of China. The CAR7, CAR8 and CAR9 were concerning the all parameters should be discussed in PDD, diagram of the location of the power meters and impact of the irrigation issue. The CAR10 was asked for transparency of the stakeholder process.

The CR1, CR2 and CR3 were concerning the correction of the section B.2 of the PDD, difference of the IRR in feasibility study report and IRR calculation spreadsheet and English translation of the FSR. The CR4, CR5 and CR6 were asked for the reference document, emission factor used in the PDD and transparency of the calculation of the emission reduction. The CR7, CR8 and CR9 were asked for the Technical Administration code of Electricity Energy Metering, starting date of the project and allocation sites of the proposed project. Considering these findings the PDD version 1 has been revised and the actual PDD version 2 is in compliance with the CDM requirement.

**Baseline calculation**

The calculation of the baseline emissions followed the procedures described in the methodology ACM0002 Version 06. The South China Power Grid is considered to be the project boundary.
The operating margin emission factor (EFOM) 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 (EFBM) was based on modified methods agreed by the EB, because plant specific data are not avail-able 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 EFOM and EFBM 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 (EFCM) was determined using the weighted aver-age of the EFBM and EFOM using the default values for the factors as described in the methodology 0.5 for hydro plants. 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 this project as well as the timeline with respect to the early CDM consideration was checked thoroughly by the assessment team.

The sequential listing of the major events associated with the proposed project activity clearly indicated that CDM was seriously considered before the starting date. The project started with the purchase agreement of Water Turbines and Generator signed between Honghe Guangyuan Hydro Power Development Co. Ltd and Tianjin City Tianfa Heavy Hydro Equipment Production Co. Ltd was on June 6, 2006 (IRL 16). Prior to that date, CDM was seriously taken into account consideration which was demonstrated by several events and actions:

- July 2005 - The FSR of the project was designed by Zhongshui Pearl River Planning Survey and Design Co. Ltd completed (IRL 7).
- January and February 2006 - Based on the FSR and the final Assessment Report “Yunfagaijiage” (2006), as well as the tariff document of “Yunfagaijiage [2006]28” (IRL 36) it was concluded that the proposed project is not feasible, and the project owner tried to look for the solutions, including contacting and learning about CDM.
- February 18, 2006 - The meeting on serious consideration of CDM application by each party of the proposed project was held and it was decided that CDM revenues can help to overcome the financial barriers of the project (IRL 21).
- March 7, 2006 - CDM consulting contract was signed (IRL 34).
- June 6, 2006 - The purchase contract for Water Turbines and Generators was signed between Honghe Guangyuan Hydro Power Development Co. Ltd and Tianjin City Tianfa Heavy Hydro Equipments Production Co. Ltd (IRL 16).
- June 15, 2006 – FS Report was approved by NDRC. The approved total static investment in this document is 977.33 million Yuan.

- July 18, 2006 – The construction of the proposed project was started.
- July 28, 2006 – Purchasing agreement of the Main Transformer was signed between Honghe Guangyuan Hydropower Development Co. Ltd and Tianwei Baobian Transformer Co. Ltd (IRL 17).
- July 12, 2007 – GSP start
- August 21, 2007 - Onsite validation was done by TÜV SÜD team

Thus it is concluded that CDM was seriously considered when making the investment decision to implement the project. After project start it took more than two years before validation of the project was commenced with GSP start in July 2007. We are however convinced that this unfortunate delay has to be seen in the project specific circumstances:

In the FSR of the proposed project completed in July 2005, the FIRR in this FSR under the input parameters of the tariff of 0.212yuan/kWh (excluding VAT) or 0.248yuan/kWh (including VAT) and also with the total static investment of 988.767million Yuan is 8.02 %( the total investment, after tax). The tariff of 0.212yuan/kWh (excluding VAT) in this FSR was not from the approved tariff document by the government, and it was the calculated and expected tariff in order to meet the demand of loan and reach the benchmark.

On 6th January 2006, “the Notice of the Related Problems about the Trial Implementation of the Different Tariff During Different Seasons (the Abundant Rainfall Season or Dry Season) for Newly Operated Hydropower Projects” was issued by Yunnan Province Development and Reform Commission (the document number: “Yunfagaijiage[2006]28“. Based on this document, the project owner found the proposed project can’t acquire the tariff of 0.212yuan/kWh (excluding VAT) in the FSR, but it can only acquire the tariff of 0.215yuan/kWh (including VAT) set in “Yunfagaijiage[2006]28”.

The FSR completed in July 2005 was reviewed and assessed by China International Engineering Consult Co. Ltd who was commissioned to do this review by National Development and Reform Commission (NDRC) in January 2006. According to the final Assessment Report issued on 18/01/2006 by China International Engineering Consult Co. Ltd, the total static investment was changed into 977.33million Yuan.

Based on the above three documents: FSR completed in July 2005, the approved document for tariff of “Yunfagaijiage[2006]28” on 06/01/2006 and the final Assessment Report by China International Engineering Consult Co. Ltd on 18/01/2006, the IRR of the proposed project is lower than 8% and the proposed project was estimated unfeasible.

The project owner tried their best to seek for the solutions; including contacting and learning about CDM in the early of year 2006 and especially knowing that Gansu Xiaogushan Hydropower Project and Hunan Yuzaikou Hydropower Project applied for CDM and had got the approval from National Development and Reform Commission (NDRC).

Based on the primary contact with CDM, on 18th February 2006, the entities related to the proposed project such as Zhongshui Pearl River Planning Survey and Design Co. Ltd, the local government such as Yunnan Province Development and Reform Commission and Yunnan Province Price Bureau, Yunnan Power Grid Company, the investors of the proposed project, the villager’s representative and CDM Consulting Company etc held the meeting to discuss the issues including the low tariff barriers faced by the project owner and the methods to solve the problems. All participates suggested the project owner should apply for CDM. After this meeting, the project owner started to prepare for the CDM project application. And in March 2006, the CDM Consulting Agreement was signed between the proposed project owner and the CDM Consulting Company.

Based on the above serious consideration of CDM and the belief for CDM, the project owner started to choose the suitable equipments and signed the turbines and generators purchase agreement on

6th, June 2006. And the FSR of the proposed project was approved by NDRC on 15th June 2006 and the construction of the proposed project was started on 18th July 2006.

The reason for the delay of more than a year until TÜV SÜD was ordered to do the validation work in July 2007 was due to the difficulties associated with the identification of an appropriate buyer. The first potential buyers expressed their interests in the project throughout 2006, however, finally denied to act as a buyer, and it took the project owner until the end of 2006 to make CAMS agree to act as the buyer and the key points were negotiated. The final ERPA was signed in May 2007 (IRL 39), and the PDD was submitted to the Chinese DNA for approval one month earlier in April 2007. Hence, TÜV SÜD confirms that continuing and real actions were taken to secure the CDM status for the project in parallel with its implementation.

In summary, TÜV SÜD can confirm that CDM was seriously taken into consideration in order to proceed and implement the proposed hydropower project.

In step one of applying the tool for the demonstration and assessment of additionality (hereafter: Additionality tool) it is concluded that there exist alternatives to the proposed project activity and the additionality criteria is fulfilled.

Step two of the additionality tool, investment analysis through bench mark analysis, described in detail that the proposed project is not financially attractive without CER revenues. The assessment team has checked all sources of the IRR calculation, as presented in Sub-step 2c in the PDD. Furthermore the calculation spreadsheet and the source of the benchmark (8%) as checked (IRL 29). The values from the Feasibility Study Report (FSR), approved by the National Authority have been the basis of the decision to proceed with the investment in the project. The IRR calculations show value of 6.69 % which is below the benchmark allowing the project owner to take the decision to apply for CDM.

The period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed. It has been verified that the values used in the PDD and associated annexes are fully consistent with the Feasibility Study Report.

TÜV SÜD performed a thorough review of the input parameters used for the calculation of the IRR of the project and checked the credibility and plausibility of the input data by comparing the applied values with TÜV's internal statistical results of the evaluation of 250 hydropower projects in China that are either already registered or under validation.

The investment costs were calculated at approximately 6.5 Mio RMB/MW, well within the average cost of 6.8 Mio RMB/MW. Based on a statement by the supervision entity of the proposed project issued in January 2008, the expenses on construction and engineering as well as on immigrant and land expropriation increased by about 20 Mio RMB each (IRL 38). In addition, due to severe floods in October 2006, an additional 5.8 Mio RMB had to be spent on the dam. Hence, the estimated investment costs applied for the IRR calculation appear to be valid and also plausible and are highly unlikely to be any lower.

The O&M costs equal about 2.4% of the total investment costs, and are thus slightly lower than the average ratio of 2.5%, hence can be considered as conservative in the CDM/additionality context. The plant is estimated to operate 4682 hours per year, resulting in a load factor of 53% compared to the average of 44%, hence can be also considered as conservative in the CDM/additionality context.

The price of the tariff was derived from the officially approved tariff document issued by the Yunnan Province Price Bureau in January 2006 (IRL 36). The applied tariff of 0.215 RMB/kWh (gross tariff) is lower compared to the average price of 0.24 RMB/kWh of all Chinese provinces (net tariff), however, based on the approval document (IRL 36) and the power purchase agreement signed in April 2008 (IRL 37), the gross tariff of 0.215 RMB/kWh is realistic, valid and applicable to this project.

In summary, TÜV SÜD checked the applied values thoroughly and based on local and sectoral expertise, TÜV SÜD confirms that these values are realistic and credible and appear to be valid at the time the investment decision was made.

A sensitivity analysis is performed, by taking into account 10% variations in grid price, total investment costs, O&M costs and electricity supplied to grid. It deems reasonable to use the applied variables, they present well realistic variations of these key parameters. To conclude the sensitivity analysis it can be stated that none of the parameter of the assumed variation of variables the benchmark of 8% is met. The variation of 10% is in line with recent EB requirements and was also observed in the past (EB39, Annex 35, §16). We thus conclude the project is financially unattractive without CER revenues.

In step 4, common practice analysis, according to 2006 China Water Resource Yearbook, there are 28 hydro power projects operated in Yunnan Province with the total installed capacity of 1350.1MW. There are 10 hydro power projects with the installed capacity less than 300MW and more than 50MW in Yunnan Province (18 hydro power projects with capacity lower than 50MW are excluded, since they are in a different category, i.e. small-scale based on Chinese standards). As for Husonghe Hydropower Station, Luosiwan Hydropower Station, Lazhuang Hydropower Station, Chaishitan Hydropower Station, Gaoqiao Hydropower Station, Malutang Hydropower Station (1st phase), Xucun Hydropower Station and Xiangshui Hydropower Station, all these eight projects started their construction before 10th February 2002 when the Notice of Electric Power Sector Reform Programme was issued by State Council. These entire projects are shown in table 5 of the PDD. If the proposed project can be registered as CDM project, the CDM revenues can improve the poor financial index of the proposed project, make the project more financial attractive, reduce the pressure from the long-term investment needed by the proposed project and cash flow risk, and reduce the risks of low bus-bar tariff and unstable electricity generation. If the proposed project cannot be registered as CDM project, the revenues which could contribute to the local finance and the job opportunity supported by the project would be impossible. All the information could be evidenced by the assessment team.

To conclude the additionality assessment we can state that, according to all the documents we have reviewed, the additionality of the project based on the available information is fulfilled.

**Monitoring**

The project applies the approved monitoring methodology ACM0002 version 06 “Consolidated monitoring methodology for zero emissions grid-connected electricity generation from renewable sources”. The selected monitoring methodology is applicable for the project activity as it involves grid-connected renewable power generation using hydropower.

In line with the methodology, the only parameter that needs to be monitored ex-post is the net electricity exported to the grid by the project activity. For this case, the electricity supplied to the grid as well as the electricity imported from the grid is measured continuously and recorded monthly, as required by the methodology. The data will be cross verified against the sales receipts from the grid company.

# 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=3421&Ebene1_ID=26&Ebene2_ID=1049&mode=1 | |
| **Starting date of the global stakeholder consultation process:**<br>2007-07-12 | |
| **Comment submitted by:**<br>none | **Issues raised:**<br>- |
| **Response by TÜV SÜD:**<br>- | |

# 5 VALIDATION OPINION

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

Nansha Hydro Power Project in Yunnan Province China

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, 2008-08-07

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

Munich, 2008-08-07

Assessment Team Leader

# Annex 1: Validation Protocol

Industrie Service

**Table 1 Conformity of Project Activity and PDD**

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| ***A. General description of project activity*** | | | | | |
| **A.1. Title of the project activity** | | | | | |
| A.1.1. | Does the used project title clearly enable to identify the unique CDM activity? | 1, 2 | Yes. The project is titled with the name of the project location, and the energy source of the project. Hence, it can be clearly identified. | ☑ | ☑ |
| A.1.2. | Are there any indication concerning the revision number and the date of the revision? | 1, 2 | Yes. The available PDD is indicated as 1st version dated 21/06/2007. | ☑ | ☑ |
| A.1.3. | Is this consistent with the time line of the project's history? | 1, 2 | Yes. The GSP has been started with this version.<br>The project Environmental Impact Assessment (EIA) was approved on 10/08/2005 by the Environment Protection Bureau of Yunnan Province. The project Feasibility Study Report (FSR) was approved on 15/05/2006 by the Development and Reform Commission of Yunnan Province, construction started in July 2006 and expected to be completed in August 2008. The starting date of electricity generation will be August 2008. | ☑ | ☑ |
| **A.2. Description of the project activity** | | | | | |
| A.2.1. | Is the description delivering a transparent overview of the project activities? | 1, 2 | Yes. The project is described transparently. It is a run-of-river hydro power project, located in Yuanyang and Jianshui County of Hani & Yi Autonomous State, Yunnan Province, China. The total installed capacity is 150MW. In average, the project activity is expected to operate 4, 682hours per year, which corresponds to an average power generation of 702,280MWh and a net electricity supply to the grid of 616,314MWh. The power generated will be connected to the local grid, then to the Yunnan Grid and finally, to the China Southern Power Grid. | ☑ | ☑ |
| A.2.2. | What proofs are available demonstrating | 1, 2, | The project activity is the displacement of electricity generated by | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| | that the project description is in compliance with the actual situation or planning? | 6, 7, 8, 9, 10 | coal fired power plants with electricity generated by hydro power. The following documents deliver evidences for the project activity:<br>- Feasibility study and its approval<br>- EIA and EIA approval<br>- Approval of Project<br>- Water & Soil Conservation Program<br>These documents have been evidenced during the audit. | | |
| A.2.3. | Is the information provided by these proofs consistent with the information provided by the PDD? | 1, 2, | Yes, it is. During the on site audit, the audit team reviewed these proofs provided by the project owner. They are consistent with the information provided by the PDD. | ☑ | ☑ |
| A.2.4. | Is all information presented consistent with details provided by further chapters of the PDD? | 1, 2 | **Corrective Action Request No.1.**<br><br>The annual emission reduction mentioned in section A.2 is 479,708 $tCO_2e$. The annual emission reduction mentioned in sections A.4.4, B.6.3 and B.6.4 is 547,718 $tCO_2e$. Please correct this inconsistency as necessary. | CAR 1 | ☑ |
| **A.3. Project participants** | | | | | |
| A.3.1. | Is the form required for the indication of project participants correctly applied? | 1, 2 | Yes. The form is correctly applied. In Table A.1 and Annex 1 of the PDD the two parties involved in the project are mentioned. | ☑ | ☑ |
| A.3.2. | Is the participation of the listed entities or Parties confirmed by each one of them? | 1, 2 | Open Issue<br>The letter of approval from the Sweden DNA is not yet emitted. They should be provided to the DOE before submitting for registration. | Open Issue | ☑ |
| A.3.3. | Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular annex 1)? | 1, 2 | Yes, section A.3 and Annex 1 are consistent. | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|
| **A.4. Technical description of the project activity** | | | | |
| *A.4.1. Location of the project activity* | | | | |
| A.4.1.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? | 1,2 | The geographical coordinates of the proposed project are east longitude 100°06'~105°40' and north latitude 22°27'~25°32', 167 km away from Hekou County at the China-Vietnam borderline and 2.5km away from Yuanyang County.<br><br>**Corrective Action Request No.2.**<br><br>The information provided on the location of the project activity doesn't allow for a clear identification of the site, the geographical coordinates show an extended area. Please submit the GPS of the dam and powerhouse with the degree, minute and second format.<br><br>For international reviewers the map should be provided in English. | CAR 2 | ☑ |
| 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, | The project was approved by the local Development and Reformation Committee and the EIA of the proposed project was approved by the local Environmental Protection Bureau. | ☑ | ☑ |
| *A.4.2. Category(ies) of project activity* | | | | |
| A.4.2.1. To which category(ies) does the project activity belonging to? Is the category correctly identified and indicated? | 1,2 | Yes, the project falls into scope 1, Energy industries (renewable/ non- renewable sources) as it deals with energy generation. | ☑ | ☑ |
| *A.4.3. Technology to be employed by the project activity* | | | | |
| A.4.3.1. Does the technical design of the project activity reflect current good practices? | 1,2 | Yes, the project design reflects current good practices based on the description of the feasibility study report and the investigation on site. It is a state-of-the-art hydropower station. | ☑ | ☑ |
| A.4.3.2. Does the description of the technology to | 1,2 | Yes, the project activity comprises the use of water power for the | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| | be applied provide sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance? | | substitution of grid supplied electricity mainly from coal fired plants. Therefore three units of HL-LJ-420 turbines matching with three units of SF50-52/9200 generators with the total installed capacity of 150MW are utilized. There is no doubt that this technology will reduce the GHG emissions significantly. | | |
| A.4.3.3. | Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(ies)? | 1,2 | No, it doesn't. There is no technology transfer from annex-I countries to China by the proposed project. | ☑ | ☑ |
| A.4.3.4. | Is the technology implemented by the project activity environmentally safe? | 1,2 | Yes. As the project is a hydro power project. It's clear that the technology implemented by the project activity is environmentally safe. | ☑ | ☑ |
| A.4.3.5. | Is the information provided in compliance with actual situation or planning? | 1,2 | Yes, it is in compliance with actual situation. | ☑ | ☑ |
| A.4.3.6. | Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in the host country? | 1,2 | The common practice for electricity generation is still coal-fired power plant. Hence, the project definitely would result in a better performance than the common practice.<br>Because the technology of installing a new hydropower plant has been fully developed and successfully implemented over China, the technology applied in the proposed project is not different compared to that of other similar hydropower plants. | ☑ | ☑ |
| A.4.3.7. | 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 proposed starting date of electricity generation is 01/01/2009. The life time of the project is under normal circumstances longer than the crediting period. | ☑ | ☑ |
| A.4.3.8. | Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period? | 1,2 | Yes. With relevance to the CDM monitoring, a monitoring officer will receive training on the monitoring methodologies, procedures and archiving by CDM Consulting Co. Ltd. Then, the monitoring officer will train the project staff in charge for CDM monitoring. | ☑ | ☑ |
| A.4.3.9. | Is information available on the demand | 1,2 | Yes, this information was provided by the project owner and veri- | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| | and requirements for training and maintenance? | | fied on site. | | |
| A.4.3.10. | Is a schedule available for the implementation of the project and are there any risks for delays? | 1,2 | As the project started since 01/07/2006, the planning schedule in the past and for the future was clearly described by the project owner during the audit, but is not included in the PDD.<br>**Corrective Action Request No.3.**<br>The time schedule of the implementation of the project should be included in the PDD. | CAR 3 | ☑ |
| *A.4.4.* | *Estimated amount of emission reductions over the chosen crediting period* | | | | |
| A.4.4.1. | Is the form required for the indication of projected emission reductions correctly applied? | 1,2 | Yes. The project emission reductions are shown in chapter A.4.4 according to the guidelines. | ☑ | ☑ |
| A.4.4.2. | Are the figures provided consistent with other data presented in the PDD? | 1,2 | The yearly emission reduction is estimated to amount 547,718 tCO2e. The same figure is quoted throughout the PDD.<br>Nevertheless, please refer to Corrective Action Request No.1 | CAR1 | ☑ |
| *A.4.5.* | *Public funding of the project activity* | | | | |
| A.4.5.1. | Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants? | 1,2 | Yes. According to the statement in A.4.5 of the PDD there is no public funding for the project activity. By reviewing the financial documents on-site this statement was verified. | ☑ | ☑ |
| A.4.5.2. | Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)? | 1,2 | Yes, it is consistent with the information provided in Annex 2. | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| ***B. Application of a baseline and monitoring methodology*** | | | | | |
| **B.1. Title and reference of the approved baseline and monitoring methodology** | | | | | |
| B.1.1. | Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated? | 1,2 | Yes, the methodology is ACM0002/Version 06 along with the *Tool for the Demonstration and Assessment of Additionality (version 4*.) | ☑ | ☑ |
| B.1.2. | Is the applied version the most recent one and / or is this version still applicable? | 1,2 | Yes. Version 6 of ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable source" and version 3 of "the Tool for the Demonstration and Assessment of Additionality" are applied, and they are the most recent ones. | ☑ | ☑ |
| **B.2. Justification of the choice of the methodology and why it is applicable to the project activity** | | | | | |
| B.2.1. | Is the applied methodology considered the most appropriate one? | 1,2 | Yes, the baseline and monitoring methodology ACM0002 is applicable to the proposed project, because the project meets all the applicability criteria stated in the methodology:<br><br>1. The proposed Project activity involves an electricity capacity addition from a run-of-river hydro power project;<br>2. The proposed Project activity does not involve fuel switching from fossil fuels to renewable energy at the site of the project activity;<br>3. The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristic of the grid is available.<br><br>**<u>Clarification Request No. 1.</u>**<br><br>There is a sentence under B.2: "the proposed project is a run-of-river water diversion small hydro power project". As the installed | CR 1 | ☑ |

| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|
| | | capacity of the proposed project is 150MW, please explain why it is a small hydro power project though. | | |
| B.2.2. Criterion 1: Type of capacity addition by renewable energy | 1,2 | Applicability checklist / Yes / No: Criterion discussed in the PDD? Yes; Compliance provable? Yes; Evidences provided in the PDD? Yes; Compliance verified? Yes | ☑ | ☑ |
| B.2.3. Criterion 2: Exclusion of fuel switching activities | 1,2 | Applicability checklist / Yes / No: Criterion discussed in the PDD? Yes; Compliance provable? Yes; Evidences provided in the PDD? Yes; Compliance verified? Yes | ☑ | ☑ |
| B.2.4. Criterion 3: Defined electricity grid boundaries | 1,2 | Applicability checklist / Yes / No: Criterion discussed in the PDD? Yes; Compliance provable? Yes; Evidences provided in the PDD? Yes; Compliance verified? Yes | ☑ | ☑ |
| B.2.5. Criterion 4: Approved inclusion in other methodologies (if applied only) | 1,2 | No applicable. | ☑ | ☑ |
| **B.3. Description of the sources and gases included in the project boundary** | | | | |
| B.3.1. Source: Fugitive Emissions from non-condensable gases (geothermal activities only) Gas(es): $CO_2$, $CH_4$ Type: Project Emissions | 1,2 | Boundary checklist / Yes / No: Source and gas(es) discussed by the PDD? N/A; Inclusion / exclusion justified? N/A; Explanation / Justification sufficient? N/A | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|
| | | Consistency with monitoring plan? N/A | | |
| B.3.2. Source: Emissions from combustion of fossil fuels (geothermal activities only) Gas(es): $CO_2$ Type: Project Emissions | 1,2 | Boundary checklist: Yes / No; Source and gas(es) discussed by the PDD? N/A; Inclusion / exclusion justified? N/A; Explanation / Justification sufficient? N/A; Consistency with monitoring plan? N/A | ☑ | ☑ |
| B.3.3. Source: Emissions from the reservoir (new hydroelectric activities only) Gas(es): $CO_2$, $CH_4$ Type: Project Emissions | 1,2 | Boundary checklist: Yes / No; Source and gas(es) discussed by the PDD? Yes; Inclusion / **exclusion** justified? Yes; Explanation / Justification sufficient? Yes; Consistency with monitoring plan? Yes<br>The project is run-of-river with a large reservoir, and the power density is greater than 10 W/m$^2$. | ☑ | ☑ |
| B.3.4. Source: Emissions from electricity generation in fossil fuel fired power plants of the project electricity system Gas(es): $CO_2$ Type: Baseline Emissions | 1,2 | Boundary checklist: Yes / No; Source and gas(es) discussed by the PDD? N/A; Inclusion / exclusion justified? N/A; Explanation / Justification sufficient? N/A; Consistency with monitoring plan? N/A | ☑ | ☑ |
| B.3.5. Source: Emissions from electricity generation in fossil fuel fired power plants of any connected electricity system Gas(es): $CO_2$ | 1,2 | Boundary checklist: Yes / No; Source and gas(es) discussed by the PDD? Yes; Inclusion / exclusion justified? Yes; Explanation / Justification sufficient? Yes | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|
| Type: Baseline Emissions | | Consistency with monitoring plan? — Yes | | |
| B.3.6. Source:<br>Emissions from electricity generation in fossil fuel fired power plants of imported electricity<br>Gas(es): $CO_2$<br>Type: Baseline Emissions | 1,2 | Boundary checklist — Yes / No<br>Source and gas(es) discussed by the PDD? — N/A<br>Inclusion / exclusion justified? — N/A<br>Explanation / Justification sufficient? — N/A<br>Consistency with monitoring plan? — N/A<br><br>As per methodology ACM0002, only $CO_2$ emissions from electricity generation in fossil fuel fired power that is displaced due to the project activity are accounted. | ☑ | ☑ |
| B.3.7. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by the PDD? | 1,2 | Yes. The project boundary for the proposed project is represented by the China Southern Power Grid. The China Southern Power Grid is a larger regional grid, which consists of four sub-grids: Guangdong Province, Guanxi Zhuang Autonomous Region, Guizhou Province, Yunnan Province. Furthermore the project boundary includes the project site (i.e. the physical site of the project plant as well as the reservoir area). | ☑ | ☑ |
| **B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario** | | | | |
| B.4.1. Is it clearly described that the baseline is represented by the combined margin of the grid the activity will be connected to? | 1,2 | Yes, the baseline is represented by the combined margin of the grid the activity will be connected to. It is the equivalent annually generated electricity supplied by the China Southern Power Grid. | ☑ | ☑ |
| B.4.2. In case of any modification or retrofit of existing facilities:<br>Is data available to determine the historic production level? | 1,2 | No applicable | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|
| B.4.3. In case of any modification or retrofit of existing facilities: Have conservative assumptions been applied in order to estimate the point in time when the existing equipment needs to be replaced? | 1,2 | No applicable | ☑ | ☑ |
| **B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):** | | | | |
| B.5.1. Is evidence provided, that CDM has been considered seriously in the decision to proceed with the project activity? | 1,2 | CDM was seriously considered prior to the project start and evidence was provided. | ☑ | ☑ |
| B.5.2. Have realistic and credible alternatives been identified providing comparable outputs or services? (step 1a) | 1,2 | Yes, the project sponsor is a hydro project developer, then the possible alternatives to the project includes:<br>• The proposed project activity, but not undertaken as CDM project activity;<br>• Construction of a fossil fuel-fired power plant with equivalent amount of annual electricity output;<br>• Construction of a power plant using other sources of renewable energy with equivalent amount of electricity output;<br>• Provision of equivalent amount of annual power output by the grid where the proposed project is connected into.<br><br>**Corrective Action Request No.4.**<br>Please provide the evidence (e.g. sources, links, etc.) to prove that "*the wind power projects and solar power projects in China are additional and most of these projects apply for CDM project".* | CAR 4 | ☑ |
| B.5.3. Is the project activity without CDM in- | 1,2 | Yes, it is included as first option. | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| | cluded in these alternatives? (step 1a) | | | | |
| B.5.4. | Is a discussion provided for all identified alternatives concerning the compliance with applicable laws and regulations? (step 1b) | 1,2 | Yes. A discussion is provided for all identified alternatives concerning the compliance with applicable laws and regulations. The conclusion is that only the second alternative (Construction of a fossil fuel-fired power plant with equivalent amount of annual electricity output) is not in compliance with Chinese relevant laws and regulation. | ☑ | ☑ |
| B.5.5. | In case the PDD argues that specific laws are not enforced in the country or region: Is evidence available concerning that statement? (step 1b) | 1,2 | All the laws quoted in the PDD are enforced in this project; hence, this section is not applicable. | ☑ | ☑ |
| B.5.6. | In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)? | 1,2 | Three analysis methods are provided according to the additionality tool. Because the proposed project generates economic benefits through the sales of electricity other than CDM revenue, therefore, the Option I (simple cost analysis) can't be taken. Moreover, the Option II (investment comparison analysis) only applies to projects where alternatives should be similar investment projects, how ever, in this case, the baseline scenario is the China Southern Power Grid; hence, Option II can't be adopted either. It deems that Option III (benchmark analysis) is the only applicable one. | ☑ | ☑ |
| B.5.7. | In case of Option I (simple cost analysis): Is it demonstrated that the activity produces no economic benefits other than CDM income? | 1,2 | The simple cost analysis is not applicable for the proposed project because the project activity will produce economic benefit (from electricity sale) other than CERs income. | ☑ | ☑ |
| B.5.8. | 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 | Option III is chosen for the investment analysis. So this section is not applicable. | ☑ | ☑ |
| B.5.9. | In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit | 1,2 | Yes, the IRR is selected as the most suitable financial indicator. | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| | ratio, or (levelized) unit cost)? | | | | |
| B.5.10. | 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 | **Clarification Request No. 2.**<br>The IRR in the feasibility study report is much higher than IRR calculation spreadsheet, please highlight all differences, then clarify the inconsistency and deliver related proof to the DOE.<br>**Clarification Request No. 3.**<br>The economic assessment presented in FSR should be provided in English and deliver to the DOE.<br>**Corrective Action Request No.5.**<br>Annual grid-connected Electricity units in Table 1 of section B.5, sub-step 2b should be corrected, from GWh/year, to MWh/year. | CR 2<br>CR 3<br>CAR 5 | ☑ |
| B.5.11. | 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 | See above CRs and CAR. | CR2<br>CR3 | ☑ |
| B.5.12. | 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 | Yes, a complete list of barriers have been developed and include:<br>• The barrier of too much sediment and sand<br>• Geological barrier | ☑ | ☑ |
| B.5.13. | In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and significance of these barriers? | 1,2 | Yes, all information is transparent and documented. | ☑ | ☑ |
| B.5.14. | In case of applying step 3 (barrier analysis): Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers? | 1,2 | Yes, at least one alternative is not prevented by the identified barriers | ☑ | ☑ |
| B.5.15. | Have other activities in the host country / region similar to the project activity been | 1,2 | Basic information about similar projects in operation with an installed capacity between 100 and 200MW, are provided in Table | CAR 6 | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| | identified and are these activities appropriately analyzed by the PDD (step 4a)? | | 4, Chapter B.5 of the PDD.<br>The common practice analysis is not sufficient and related proofs are not available.<br>**Corrective Action Request No.6.**<br>The latest version of *Water Resources Review of the People's Republic of China should be applied,* and deliver to the DOE. Please update and extend the common practice analysis. | | |
| B.5.16. | If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component (step 4b)? | 1,2 | In conclusion, the project faces several barriers which would prevent the implementation of the proposed project activity without CDM. CDM helps to overcome these barriers. If the project could not be implemented, the power will be supplied by the Southern Grid. Nevertheless, see correction request below.<br>**Clarification Request No. 4.**<br>Reference documents and/or data sources supporting the analysis presented under Sub-step 4b must be delivered to DOE. | CR 4 | ☑ |
| **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 | Yes. The calculation of the emission reduction is applied according to the steps described in ACM0002:<br>- Calculation of the Operating Margin Emission Factor<br>- Calculation of the Build Margin Emission Factor<br>- Calculation of the Combined Margin Emission Factor<br>These steps are described in a transparent manner. | ☑ | ☑ |
| B.6.1.2. | Is every selection of options offered by the methodology correctly justified and is this | 1, 2 | Yes, every selection of options offered by the methodology is correctly justified and this justification is in line with the situation veri- | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| | justification in line with the situation verified on-site? | | fied on-site. | | |
| B.6.1.3. | Are the formulae required for the determination of project emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored? | 1,2 | Not applicable.<br><br>The power density of proposed project is greater than 10W/m2. Therefore, according to the ACM0002 methodology, greenhouse gas emissions from the project activity are zero, i.e. $PE_y = 0$. | ☑ | ☑ |
| B.6.1.4. | Are the formulae required for the determination of baseline emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored? | 1,2 | Yes, see Equation (11) in section B.6.1 in the PDD<br>$ERy=(EG_{PJ\ to\ Grid,\ y} -- EG_{Grid\ to\ PJ,\ y}) EF_y$<br><br>**Clarification Request No. 5.**<br>The emission factor presented in the PDD is higher than the value published in August 2007 by the NDRC. Please provide the spreadsheet calculation to the assessment team in order to allow reproduction of the emission factor calculation. | CR 5 | ☑ |
| B.6.1.5. | Is the choice of options to determine the emissions factor (OM, BM) justified in a suitable and transparent manner? | 1,2 | Yes, the choice of options to determine the Emission Factor is fully justified in the PDD. | ☑ | ☑ |
| B.6.1.6. | In case of alternative weighing factors for the Combined Margin: Is the quantification of the alternative weighing factor justified in a suitable and transparent manner? | 1,2 | Not applicable. The default weights for hydro power projects in the 6th version of ACM0002 (OM 0.5 and BM 0.5 respectively) are used. | ☑ | ☑ |
| B.6.1.7. | In case of alternative weighing factors for the Combined Margin: Is the guidance for the PDD concerning the acceptability of alternative weights considered in the discussion? | 1,2 | See comments above | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|
| B.6.1.8. Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored? | 1,2 | No leakage is considered according to the methodology. Based on ACM0002, as discussed project participants do not need to consider leakage in applying ACM0002 methodology, i.e. Ly=0. | ☑ | ☑ |
| B.6.1.9. Are formulae required for the determination of emission reductions correctly presented? | 1,2 | Yes, see Equation (12) in section B.6.1 of the PDD. | ☑ | ☑ |
| *B.6.2. Data and parameters that are available at validation* | | | | |
| B.6.2.1. Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology? | 1,2 | **Corrective Action Request No.7.**<br>The parameters indicated in the following tables with "no" should be included into the PDD. | CAR 7 | ☑ |
| B.6.2.2. Is the choice of ex-ante or ex-post vintage of OM and BM factors clearly specified in the PDD? | 1,2 | Yes. For the calculation of the emission reductions the ex-ante approach has been used. | ☑ | ☑ |
| B.6.2.3. Parameter Title:<br>Annual electricity supplied to the grid prior to retrofit<br>(applicable only for retrofit and modification activities) | 1, 2 | Data Checklist / Yes / No<br>Title in line with methodology? N/A<br>Data unit correctly expressed? N/A<br>Appropriate description of parameter? N/A<br>Source clearly referenced? N/A<br>Correct value provided? N/A<br>Has this value been verified? N/A<br>Choice of data correctly justified? N/A<br>Measurement method correctly described? N/A | ☑ | ☑ |
| B.6.2.4. Parameter Title:<br>Emission factor of the grid (CM) | 1, 2 | Data Checklist / Yes / No<br>Title in line with methodology? No<br>Data unit correctly expressed? No | CAR 7 | ☑ |

| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|
| | | Appropriate description of parameter? No<br>Source clearly referenced? No<br>Correct value provided? No<br>Has this value been verified? No<br>Choice of data correctly justified? No<br>Measurement method correctly described? No<br><br>**See Corrective Action Request 7** | | |
| B.6.2.5. Parameter Title:<br>Operating margin (OM) emission factor of the grid | 1, 2 | Data Checklist — Yes / No<br>Title in line with methodology? No<br>Data unit correctly expressed? No<br>Appropriate description? No<br>Source clearly referenced? No<br>Correct value provided? No<br>Has this value been verified? No<br>Choice of data correctly justified? No<br>Measurement method correctly described? No<br><br>See Corrective Action Request 7 | CAR 7 | ☑ |
| B.6.2.6. Parameter Title:<br>Build margin (BM) emission factor of the grid | 1, 2 | Data Checklist — Yes / No<br>Title in line with methodology? Yes<br>Data unit correctly expressed? Yes<br>Appropriate description of parameter? Yes<br>Source clearly referenced? Yes<br>Correct value provided? Yes<br>Has this value been verified? Yes<br>Choice of data correctly justified? Yes | CAR 7 | ☑ |

| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|
| | | Measurement method correctly described? Yes<br><br>See Corrective Action Request 7 | | |
| B.6.2.7. Parameter Title: fuel consumption of each power source | 1, 2 | Data Checklist / Yes / No<br>Title in line with methodology? Yes<br>Data unit correctly expressed? Yes<br>Appropriate description of parameter? Yes<br>Source clearly referenced? Yes<br>Correct value provided? Yes<br>Has this value been verified? Yes<br>Choice of data correctly justified? Yes<br>Measurement method correctly described? Yes<br><br>Fuel consumption of thermal power plants: *China Energy Statistical Yearbook* (2004-2006). | ☑ | ☑ |
| B.6.2.8. Parameter Title: emission coefficient of each fuel | 1, 2 | Data Checklist / Yes / No<br>Title in line with methodology? Yes<br>Data unit correctly expressed? Yes<br>Appropriate description of parameter? Yes<br>Source clearly referenced? Yes<br>Correct value provided? Yes<br>Has this value been verified? Yes<br>Choice of data correctly justified? Yes<br>Measurement method correctly described? Yes | ☑ | ☑ |
| B.6.2.9. Parameter Title: electricity generation of each power | 1, 2 | Data Checklist / Yes / No | ☑ | ☑ |

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
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<table>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Choice of data correctly justified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>Yes</td></tr>
</table>
<br>A coal-fired power plant with a total installed capacity of 600MW is assumed to be the commercially available best practice technology in terms of efficiency. The estimated coal consumption of such a National Sub-critical Power Station with a capacity of 600MW is 336.66gce/kWh, which corresponds to an efficiency of 36.53% for electricity generation.</td><td></td><td></td></tr>
<tr><td>B.6.2.10. Parameter Title:<br>surface area of full reservoir level<br>(for new hydroelectric activities only)</td><td>1, 2</td><td>
<table>
<tr><th>Data Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>N/A</td></tr>
<tr><td>Data unit correctly expressed?</td><td>N/A</td></tr>
<tr><td>Appropriate description of parameter?</td><td>N/A</td></tr>
<tr><td>Source clearly referenced?</td><td>N/A</td></tr>
<tr><td>Correct value provided?</td><td>N/A</td></tr>
<tr><td>Has this value been verified?</td><td>N/A</td></tr>
<tr><td>Choice of data correctly justified?</td><td>N/A</td></tr>
<tr><td>Measurement method correctly described?</td><td>N/A</td></tr>
</table>
<br>As the power density is greater than 10 W/m$^2$ , this parameter is not needed.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.11. Parameter Title:<br>fraction of time with low costs /must run</td><td>1, 2</td><td>
<table>
<tr><th>Data Checklist</th><th>Yes / No</th></tr>
</table></td><td>☑</td><td>☑</td></tr>
</table>

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

| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|
| | | Measurement method correctly described? Yes | | |
| *B.6.3. Ex-ante calculation of emission reductions* | | | | |
| B.6.3.1. Is the projection based on the same procedures as used for future monitoring? | 1,2 | No, as the projection is calculated with the installed capacity and the future monitoring will be directly measured. | ☑ | ☑ |
| B.6.3.2. Are the GHG calculations documented in a complete and transparent manner? | 1,2 | Yes. Project emissions and leakage are negligible.<br>Nevertheless, please refer to See Corrective Action Request 5 | Open | ☑ |
| B.6.3.3. Is the data provided in this section consistent with data as presented in other chapters of the PDD? | 1,2 | Yes, The calculations of the emission reductions are consistent with sections B.6.1 and B.6.2. | ☑ | ☑ |
| *B.6.4. Summary of the ex-ante estimation of emission reductions* | | | | |
| B.6.4.1. Will the project result in fewer GHG emissions than the baseline scenario? | 1,2 | Yes, as there are no project emissions. | ☑ | ☑ |
| B.6.4.2. Is the form/table required for the indication of projected emission reductions correctly applied? | 1,2 | Yes, the form is correctly applied. | ☑ | ☑ |
| B.6.4.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period? | 1,2 | Yes. The life time of the project is expected to be 21 years and the renewable crediting period of max 7 years with potential for 2 renewals is chosen. The yearly emission reduction and total emission reductions are indicated in section B.6.4. of the PDD. | ☑ | ☑ |
| B.6.4.4. Is the data provided in this section in consistency with data as presented in other chapters of the PDD? | 1,2 | Yes, it is consistent. | ☑ | ☑ |
| **B.7. Application of the monitoring methodology and description of the monitoring plan** | | | | |
| *B.7.1. Data and parameters monitored* | | | | |

<table>
<tr><th colspan="2">CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.7.1.1.</td><td>Is the list of parameters presented by chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?</td><td>1,2</td><td>Yes. Because the ex-ante approach is adopted, the net electricity fed to the grid is required to be monitored. This parameter has been included in table B.7.1 in the PDD.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.2.</td><td>Parameter Title:<br>Electricity supplied to the grid</td><td>1,2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.3.</td><td>Parameter Title:<br>Quantity of steam produced<br>(for geothermal projects only)</td><td>1,2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>N/A</td></tr><tr><td>Data unit correctly expressed?</td><td>N/A</td></tr><tr><td>Appropriate description of parameter?</td><td>N/A</td></tr><tr><td>Source clearly referenced?</td><td>N/A</td></tr><tr><td>Correct value provided for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr><tr><td>Correct reference to standards?</td><td>N/A</td></tr><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>N/A</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

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

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

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

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| *B.7.2.* | *Description of the monitoring plan* | | | | |
| B.7.2.1. | Is the operational and management structure clearly described and in compliance with the envisoned situation? | 1,2 | Yes, it is clearly described in section B.7.2 (Monitoring Organization, Monitoring Equipment and its installation, Data Collection, Calibration, Data Management) and Monitoring Report of the PDD. | ☑ | ☑ |
| B.7.2.2. | Are responsibilities and institutional arrangements for data collection and archiving clearly provided? | 1,2 | Yes. The project owner is responsible for recording this set of data. Electricity sales invoices will also be obtained as an additional check. Data records will be archived for 2 years following the end of the crediting period. A chief monitoring officer will be appointed by the project owner. He/She supervises and verifies metering and recording, collects data (meter's data reading, sales/billing receipts), calculates emission reductions and prepares a monitoring report. | ☑ | ☑ |
| B.7.2.3. | Does the monitoring plan provide current good monitoring practice? | 1,2 | Yes, the monitoring plan incurs in good practices. | ☑ | ☑ |
| B.7.2.4. | If applicable: Does annex 4 provide useful information enabling a better understanding of the envisoned monitoring provisions? | 1,2 | **Corrective Action Request No.8.**<br>A diagram of the location of the power meters should be included.<br>**Clarification Request No. 6.**<br>It should be transparent that for the calculation of the emission reduction only the net electricity produced by this plant will be used (the electricity supplied from other power station in case of emergency should be deducted too).<br>**Clarification Request No. 7.**<br>Please deliver the *Technical Administrative Code of Electric Energy Metering (DL/T448-2000)* to the DOE. | CAR 8<br>CR 6<br>CR 7 | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| **B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)** | | | | | |
| B.8.1. | Is there any indication of a date when the baseline was determined? | 1,2 | Yes, the baseline determination is dated 21/06/2207. | ☑ | ☑ |
| B.8.2. | Is this consistent with the time line of the PDD history? | 1,2 | Yes, it is. See also A.1.3 of this document. | ☑ | ☑ |
| B.8.3. | Is the information on the person(s) / entity(ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation? | 1,2 | Yes. Beijing Haohua Rivers International Water Engineering Consulting, Co., Ltd determined the baseline and the monitoring methodology. | ☑ | ☑ |
| B.8.4. | Is information provided whether this person / entity is also considered a project participant? | 1,2 | Yes. The above mentioned bodies are no project participants. | ☑ | ☑ |
| ***C. Duration of the project activity / crediting period*** | | | | | |
| **C.1. Duration of the project activity** | | | | | |
| C.1.1. | Are the project's starting date and operational lifetime clearly defined and reasonable? | 1,2 | The starting date provided is 01/07/2006 in the PDD.<br>**Clarification Request No. 8.**<br>Please clarify which activity is linked with the starting date. | CR 8 | ☑ |
| **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. | 1,2 | Yes. Seven years with potential for 2 renewals is chosen as the crediting period, because the expected operational lifetime of the project activity is 50 years. | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| | 10 years)? | | | | |
| ***D. Environmental impacts*** | | | | | |
| **D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts** | | | | | |
| D.1.1. | Has the analysis of the environmental impacts of the project activity been sufficiently described? | 1,2, 8, 9, 10, 11 | Yes, the environmental impacts of the project activity such as noise, visual impacts, interference with communication etc. have been clearly described.<br>**Corrective Action Request No.9.**<br>The impact on irrigation should be analyzed and the occupied land should be presented in PDD in a clear and transparent manner.<br>**Clarification Request No. 9.**<br>The allocation sites stated in the PDD are four. At the moment of the on-site visit there were only two allocation sites. Please resolve the inconsistency. | CAR 9<br>CR 9 | ☑ |
| D.1.2. | Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved? | 1,2, 7, 9 | Yes, EIA is a must in the P. R. China for new hydro power projects. The EIA of the proposed project was approved by National Environment Protection Bureau on August 10, 2005. | ☑ | ☑ |
| D.1.3. | Will the project create any adverse environmental effects? | 1,2, 8, 9, 10, 11 | No. According to the EIA and the approval of EIA, the project will create no negative environmental impacts. | ☑ | ☑ |
| D.1.4. | Were transboundary environmental impacts identified in the analysis? | 1,2, 8, 9, 10, 11 | There is no trans-boundary impact described in EIA report or approval of EIA. | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|
| **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, 8, 9, 10, 11 | Yes. According to the EIA and the approval of EIA, there is no adverse environmental impact from the project activity. | ☑ | ☑ |
| D.2.2. Does the project comply with environmental legislation in the host country? | 1,2, 8, 9, 10, 11 | Yes, the project is in conformity with the environmental legislation of the P. R. China and the EIA has been approved by authorized organization. | ☑ | ☑ |
| ***E. Stakeholders' comments*** | | | | |
| **E.1. Brief description how comments by local stakeholders have been invited and compiled** | | | | |
| E.1.1. Have relevant stakeholders been consulted? | 1,2, 22 | There were two phases for inviting the comments of the stakeholders. The first phase was done in June 2005 by Zhujiang Water Resource Project Science Institute during the desig of the EIA report. The second phase was carried out from 1st March 2006 to 15th March 2006 by the project owner and the local Town Committee in Yuanyang County.<br>The proposed project affects 14 villages of 6 towns of four counties, but only one village was involved in inviting for comments at the second phase via a bulletin delivered to the village head by the project owner, and any comments were received.<br>**Corrective Action Request No.10.**<br>Relevant stakeholders should be consulted sufficiently and more appropriate media should be used to invite comments of the stakeholders. The comments received should be summarized and | CAR 10 | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| | | | included in the PDD. | | |
| E.1.2. | Have appropriate media been used to invite comments by local stakeholders? | 1,2, 22 | No, see See Corrective Action Request 10. | Open | ☑ |
| E.1.3. | If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws? | 1,2, 22 | There are no regulations/laws in China for carrying out the stakeholder consultation process for this project activity. | ☑ | ☑ |
| E.1.4. | Is the undertaken stakeholder process that was carried out described in a complete and transparent manner? | 1,2, 22 | No, see See Corrective Action Request 10 | Open | ☑ |
| **E.2. Summary of the comments received** | | | | | |
| E.2.1. | Is a summary of the stakeholder comments received provided? | 1,2, 22 | No, see See Corrective Action Request 10. | Open | ☑ |
| **E.3. Report on how due account was taken of any comments received** | | | | | |
| E.3.1. | Has due account been taken of any stakeholder comments received? | 1,2, 22 | No, see See Corrective Action Request 10 | Open | ☑ |
| ***F. Annexes 1 - 4*** | | | | | |
| **Annex 1: Contact Information** | | | | | |
| F.1.1. | Is the information provided consistent with the one given under section A.3? | 1,2 | Yes, both sections are consistent. | ☑ | ☑ |
| F.1.2. | Is the information on all private participants and directly involved Parties presented? | 1,2 | Yes, information is complete.. | ☑ | ☑ |

| CHECKLIST TOPIC / QUESTION | | Ref. | COMMENTS | PDD in GSP | Final PDD |
|---|---|---|---|---|---|
| **Annex 2: Information regarding public funding** | | | | | |
| F.1.3. | Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants? | 1,2 | No public funding is involved in this project activity. | ☑ | ☑ |
| F.1.4. | If necessary: Is an affirmation available that any such funding from Annex-I-countries does not result in a diversion of ODA? | 1,2 | No applicable, See comments above. | ☑ | ☑ |
| **Annex 3: Baseline information** | | | | | |
| F.1.5. | If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD? | 1,2 | Yes, the information is consistent with data presented by other section of the PDD. | ☑ | ☑ |
| F.1.6. | Is the data provided verifiable? Has sufficient evidence been provided to the validation team? | 1,2 | The emission factor presented in the PDD is higher than the value published by NDRC in Aug. 2007.<br>See B.6.1.4 | Open | ☑ |
| F.1.7. | Does the additional information substantiate / support statements given in other sections of the PDD? | 1,2 | Yes, information complements information in other chapters of the PDD.. | ☑ | ☑ |
| **Annex 4: Monitoring information** | | | | | |
| F.1.8. | If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD? | 1,2 | No additional information is provided. | ☑ | ☑ |
| F.1.9. | Is the information provided verifiable? Has | 1,2 | See comments above. | ☑ | ☑ |

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

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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 |
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| **CARs** | | | |
| **Corrective Action Request No.1.**<br>The annual emission reduction mentioned in section A.2 is 479,708 $tCO_2e$. The annual emission reduction mentioned in sections A.4.4, B.6.3 and B.6.4 is 547,718 $tCO_2e$. Please correct this inconsistency as necessary. | A.2.4 | Now, this inconsistency has been revised.<br>The annual emission reduction mentioned in section A.2 is the same as the annual emission reduction mentioned in sections A.4.4, B.6.3 and B.6.4 as 519,768 $tCO_2e$. | ☑<br>This issue is considered to be resolved. |
| The geographical coordinates of the proposed project are east longitude 100°06'~105°40' and north latitude 22°27'~25°32', 167 km away from Hekou County at the China-Vietnam borderline and 2.5km away from Yuanyang County.<br>**Corrective Action Request No.2.**<br>The information provided on the location of the project activity doesn't allow for a clear identification of the site, the geographical coordinates show an extended area. Please submit the GPS of the dam and powerhouse with the degree, minute and second format.<br>For international reviewers the map should be provided in English. | A.4.1.1 | The layout of the dam and the power station are on the same line on Hong River. So the dam and the power station have the same east longitude and north latitude.<br>According to the measurement of the proposed project owner, the geographical coordinates of the proposed project are east longitude 102°51′21″and north latitude23°13′46″, which has been added in section A4.1.4.<br>The map in English is used in section A4.1.4 | ☑<br>This issue is considered to be resolved. |

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| As the project started since 01/07/2006, the planning schedule in the past and for the future was clearly described by the project owner during the audit, but is not included in the PDD.<br>**Corrective Action Request No.3.**<br>The time schedule of the implementation of the project should be included in the PDD. | A.4.3.10 | The time schedule of the proposed project was added in section A.4.3. Please see in section A.4.3.<br>Furthermore, the milestones especially related to CDM consideration of the proposed project was added in the end of section B.5. | ☑<br>This issue is considered to be resolved. |
| **Corrective Action Request No.4.**<br>Please provide the evidence (e.g. sources, links, etc.) to prove that "*the wind power projects and solar power projects in China are additional and most of these projects apply for CDM project".* | B.5.3 | The reason to exclude other renewable power plants is revised according to the unavailability of these renewable sources, which is shown in section B.4. | ☑<br>This issue is considered to be resolved. |
| **Corrective Action Request No.5.**<br>Annual grid-connected Electricity units in Table 1 of section B.5, sub-step 2b should be corrected, from GWh/year, to MWh/year. | B.5.11 | Has been revised to be 616,314MWh in table in section B.5. And all the unit for electricity in the whole PDD was in MWh. | ☑<br>This issue is considered to be resolved. |
| **Corrective Action Request No.6.**<br>The latest version of *Water Resources Review of the People's Republic of China should be applied,* and deliver to the DOE. | B.5.16 | The revised content for common practice is shown in Step 4 in section B.5 and the data source of the hydro power projects in step 4 is shown in the attached document of common practice including 2006 China Water Resource Yearbook, Classification & design safety standard of hydropower projects (DL5180-2003), the detailed information for the middle scale projects operated in Yunnan Province, please see the attachment. | ☑<br>This issue is considered to be resolved. |
| **Corrective Action Request No.7.**<br>The parameters indicated in the following tables with "no" should be included into the PDD. | B.6.2.1<br>B.6.2.4<br>B.6.2.5<br>B.6.2.6 | Has been included into the revised PDD. | ☑<br>This issue is considered to be resolved. |

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| **Corrective Action Request No.8.**<br>A diagram of the location of the power meters should be included. | B.7.2.4 | The diagram of the location of the power meters of Nansha has been added in section B.7.2 and annex 4. | ☑<br>This issue is considered to be resolved. |
| **Corrective Action Request No.9.**<br>The impact on irrigation should be analyzed and the occupied land should be presented in PDD in a clear and transparent manner. | D.1.1 | In the end of section D.1, the detailed information about Imigration allocation and land occupation has been added:<br>It is estimated that 853 inhabitants need to resettle and 3.52 $km^2$ previously used land is submerged due to the proposed project.<br>The measures for the resettle and compensation have been added in section D too.<br>And the investigation for these immigrates have been done when doing the stakeholders' investigation which is shown in section E. | ☑<br>This issue is considered to be resolved. |

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| **Corrective Action Request No.10.**<br>Relevant stakeholders should be consulted sufficiently and more appropriate media should be used to invite comments of the stakeholders. The comments received should be summarized and included in the PDD. | E.1.1<br>E.1.2<br>E.1.4<br>E.2.1<br>E.3.1 | There are three phases for inviting the comments of the stake-holders.<br>The first phase of inviting the comments was done in June 2005 by Zhujiang Water Resource Protection Science Institute during designing EIA report, which emphasized on the comments for environmental impact.<br>The second phase of inviting the comments was carried out from 1st March 2006 to 17th March 2006 by the project owner and the local Town Committee in yuanyang County(9 villagers) and Jianshui County(18 villagers), which emphasized on the comments whether the proposed project was supported for applying for CDM.<br>The third phase of inviting the comments was done in 2007 which emphasised on whether the immigrates and the villagers whose land were occupied were settled down well and whether they were stratified with their new life after immigration.<br>The concrete and the related document and proof can be shown in the attachment from EIA and from "the Letter of Feedback Opinions about the proposed project applying for CDM" and from the 183 questionnaires completed during the third phase. | ☑<br>This issue is considered to be resolved. |
| **CRs** | | | |
| **Clarification Request No.1.**<br>There is a sentence under B.2: "the proposed project is a run-of-river water diversion small hydro power project". As the installed capacity of the proposed project is 150MW, please explain why it is a small hydro power project though. | B.2.1 | Has deleted "small" in section B.2. | ☑<br>This issue could be solved. The plant is not a small plant, and also contains a reservoir. |

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| **Clarification Request No.2.**<br>The IRR in feasibility study report is much higher than IRR calculation spreadsheet, please highlight all differences, then clarify the inconsistency and deliver related proof to the DOE. | B.5.11 | The tariff in FSR was anti-calculated based on the requirement of loan and requirement of FIRR 8%, which means the FIRR of 8% was set as the targets/benchmark/result and then change the tariff in order to meet the 8%. In order to reach FIRR 8%, the tariff is calculated to be 0.212yuan/kWh (excluding VAT) is FSR, which is at so high level of tariff in Yunnan Province that it is impossible for the proposed project to acquire this tariff.<br>According to the document of "the Notice of the Related Problems about the Trial Implementation of the Different Tariff During Different Seasons (the Abundant Rainfall Season or Dry Season) for Newly Operated Hydropower Projects" issued by Yunnan Province Development and Reform Commission on 6th January 2006(the document number: Yunfagaijiage [2006]28), also confirmed by the local government and the local power grid, the actual tariff the project owner can acquire is 0.215yuan/kWh(including VAT), less than the tariff in FSR.<br>Please see the data source from FSR and the FIRR calculation sheet and the document of Yunfagaijiage [2006]28. | ☑<br>The tariff approval document and the PPA were submitted to TÜV SÜD for further validation (IRL 36, 37). The lower tariff of 0.215 RMB/kWh could be verified and appears to be valid and applicable to this project. |
| **Clarification Request No.3.**<br>The economic assessment presented in FSR should be provided in English and deliver to the DOE. | B.5.11 | Has been prepared and please see in the attached document. | ☑<br>This issue is considered to be resolved. |
| **Clarification Request No.4.**<br>Reference documents and/or data sources supporting the analysis presented under Substep 4b must be delivered to DOE. | B.5.1.7 | The revised content for common practice is shown in Step 4 in section B.5 and the data source of the hydro power projects in step 4 is shown in the attached document of common practice including 2006 China Water Resource Yearbook, Classification & design safety standard of hydropower projects (DL5180-2003), the detailed information for the middle scale projects operated in Yunnan Province. Please check the attachment. | ☑<br>This issue is considered to be resolved. |

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| **Clarification Request No.5.**<br>The emission factor presented in the PDD is higher than the value published in August 2007 by the NDRC. Please provide the spreadsheet calculation to the assessment team in order to allow reproduction of the emission factor calculation. | B.6.1.4 | The emission factor of coke and refinery gas has been revised (according to IPCC2006, the emission factor of coke should be 29.2tC/TJ, instead of 25.8 in NDRC. This has been revised. According to IPCC2006, the emission factor of refinery gas should be 15.7tC/TJ, instead of 18.2 in NDRC. This has been revised.)<br>Furthermore, the losses rates of thermal power of Guizhou and Yunnan in 2005 quoted by NDRC are reverse. This has been revised.<br>And other data is from DNA issued on 9th August 2007. And all the information about emission factor of South China Power Grid in PDD has been revised.<br>The concrete calculation process for emission factor of South China Power Grid is provided for DOE as ex-cel attachment. | ☑<br>This issue is considered to be resolved. |
| **Clarification Request No.6.**<br>It should be transparent that for the calculation of the emission reduction only the net electricity produced by this plant will be used (the electricity supplied from other power station in case of emergency should be deducted too). | B.7.2.4 | **For "Data to be monitored"** in section B.7.2, the following description has been added:<br>"Since the baseline emission factor is calculated ex-ante, the main data to be monitored is grid-connected power of the proposed project activity （$EG_{PJ\ to\ SCPG,y}$） and the power supplied by the South China Power Grid Corporation grid corporation to the proposed project （$EG_{SCPG\ to\ PJ,y}$）. The net grid-connected power generation of the proposed project in year(s) *y* ($EG_y$) is equal to<br>$EG_y = EG_{PJ\ to\ SCPG,y} - EG_{SCPG\ to\ PJ,y}$.<br>Calculation of the emission reduction by the proposed project, only the net electricity produced by the proposed project ($EG_y$) will be used. If in case of emergency, the electricity supplied from other power stations for the proposed project should also be deducted too." | ☑<br>This issue is considered to be resolved. |

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| **Clarification Request No.7.**<br>Please deliver the *Technical Administrative Code of Electric Energy Metering (DL/T448-2000)* to the DOE. | B.7.2.4 | This document is in the attachment. Please check it. | ☑<br>This issue is considered to be resolved. |
| **Clarification Request No.8.**<br>Please clarify which activity is linked with the starting date. | C.1.1 | The starting date of 18/07/2006 in section C.1 is the construction date of main body which can be shown in the attached Order of Commencement. | ☑<br>This issue is considered to be resolved. |
| **Clarification Request No.9.**<br>The allocation sites stated in the PDD are four. At the moment of the on-site visit there were only two allocation sites. Please resolve the inconsistency. | D.1.1 | Has changed to “two allocation sites” according to the actual condition of the proposed project. This has been added in section D.1.Immigration allocation and land occupation. | ☑<br>This issue is considered to be resolved. |

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# Annex 2: Information Reference List

| Reference No. | Document or Type of Information |
|---|---|
| 1 | Project Design Document for CDM project "Nansha Hydro Power Project in Yunnan Province China", version 1, June 21, 2007. Version 2, July 25, 2008. |
| 2 | Consolidated baseline methodology for grid-connected electricity generation from renewable sources, version 06. |
| 3 | Tool for the demonstration and assessment of additionality, version 04. |
| 4 | Participant list of on-site interview, signed on August 21, 2007 |
| 5 | On-site interviews and inspection at the office conducted on August 21, 2007 by validator of TUV-SUD.<br>Validation team:<br>Mr. Tom Rencheng Xiong Jiangsu TÜV Product Service Ltd., Shenzhen Branch<br><br>Interviewed persons:<br>Mr. Wang Hualing Honghe Guangyuan Hydro Power Development Co. Ltd.<br>Mr. Liu Haijun Honghe Guangyuan Hydro Power Development Co. Ltd.<br>Mr. Ganjunyi Honghe Guangyuan Hydro Power Development Co. Ltd. |
| 6 | Approval of Nansha Hydro Power Project in Yunnan Province China, dated on June 15, 2006, the National Development and Reform Commission of the People's Republic of China, file number: No.945 Fa Gai Nei Yuan [2006]. |
| 7 | Feasibility Study Report, dated in July 2005. |
| 8 | EIA, dated in June 2005. |
| 9 | Approval of EIA, dated on August 10, 2005, National Environmental Protection Bureau, file number: No.678 Huan Shen [2005]. |
| 10 | Water & Soil Conservation Program, dated in Feburary, 2005 |
| 11 | Approval of Water & Soil Conservation Program, dated on April 11, 2005, Water Conservancy Department of Yunnan Province, file number: No.38, Yun Shui Shui Bao [2005]. |
| 12 | Pre-review of Land Expropriation, dated on August 1, 2005, National Land Management Department, file number: No.282 Guo Tou Zi Yu Shen [2005]. |
| 13 | Approval of Usage of Forest Land, dated on April 13, 2007, National Forestry Management Department, file number: No.074 Ling Zi Xu |

| Reference No. | Document or Type of Information |
|---|---|
| | Zhun [2007] |
| 14 | Loan Contract, dated on August 18, 2006, signed with Guangzhou Tianpingjia Branch of Industrial and Commercial Bank of China. |
| 15 | Agreement on Compensation for Land Expropriation and Resettlement, dated on December 18, 2005, signed with Honghe Hani & Yi Autonomous Prefecture of Yunnan Province. |
| 16 | Turbines and Generators Purchasing Agreement, dated in June 2006, signed with Tianjing Tianfa Electric Machinery Co., Ltd. |
| 17 | Main Transformers Purchasing Agreement, dated in July 2006, signed with Tianwei Baobian Transformer Co., Ltd. |
| 18 | Assessment Report of Water Resources, dated in March, 2005. |
| 19 | River Basin Development Plan, dated in October, 2001. |
| 20 | Approval of River Basin Development Plan, dated on October 16, 2005, Water Conservancy Department of Yunnan Province. |
| 21 | Meeting Minute about the Decision of Consideration for CDM support, dated on February 18, 2006. |
| 22 | The certification about no any comments received from Yuli Village, dated on March 17, 2006. |
| 23 | Agreement on Connection to Grid, dated on May 10, 2007, signed with Honghe Guangyuan Hydro Power Development Co., Ltd. |
| 24 | Emergency Plan for Inundation dated in January, 2007. |
| 25 | Geographical Fatalness Assessment Report, dated in April, 2004. |
| 26 | Approval of Geographical Fatalness Assessment Report, dated on June 4, 2004, Land Management Department of Yunnan Province, file number: No. 229, Yun Guo Tou Zi Huan [2004]. |
| 27 | Supporting Policy for Large and Middle Reservoir Resettlement at Later Stage, dated on May 17, 2006, the State Department of China, file number: No.17 Guo Fa [2006]. |
| 28 | Compensation Standard for Land Expropriation and resettlement of Nansha Project, dated on April 19, 2006, the Government of Honghe Hani & Yi Autonomous Prefecture of Yunnan Province. |
| 29 | IRR calculation sheet |
| 30 | The Management Provisional Regulation on the Construction of Small Fuel-fired Generators issued in Aug. 1997. |
| 31 | The Interim Measures on the Economic Evaluation of Technical Transformation Projects of Electric Power Engineering. |
| 32 | China Energy Statistical Yearbook (2004/2005/2006) |

| Reference No. | Document or Type of Information |
|---|---|
| 33 | China Electric Power Yearbook(2004/2005/2006) |
| 34 | CDM Consulting Contract was signed on March 2006 |
| 35 | Construction of the proposed project was started on 18 July 2006 |
| 36 | Tariff Approval: Yunfagaijiage [2006]28" by Yunnan Province Development and Reform Commission on 06/01/2006. |
| 37 | The Power Purchase Agreement (PPA) for Nansha Hydropower Station signed between the project owner and the Yunnan Power Grid; April 2008. |
| 38 | Concerning about the Investment of Nansha Hydropower Project; Guangdong Province Keyuan Engineering Supervision Consulting Co.,Ltd., Honghe Nansha Hydropower Project Engineering Supervision Department; January 30, 2008. |
| 39 | Emission Reduction Purchase Agreement, May 31, 2007. |