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Validation Report

RWE Power AG

VALIDATION OF THE CDM-PROJECT:

YUNNAN NUJIANG FUGONG GUQUAN RIVER HYDROPOWER STATION

REPORT NO. 1030168

2008, July 31

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 Certification Body "climate and energy" Westendstr. 199 80686 Munich Germany	Jiangsu TÜV Product Service Ltd., Shenzhen Branch 28/F, Anlian Building No. 4018 Jintian Road 518026 Shenzhen China
Client: RWE Power Huyssenallee 2 45128 Essen Germany	**Project Site(s):** Guquan River, branch of Nujiang River, Fugong County, Nujiang Lisu Autonomous Prefecture, Yunnan Province, PR China. Dam1: longitude 98°48'10"E; latitude 26°51'15"N Dam2: longitude 98°48'37"E; latitude 26°50'48"N

Project Title:	Yunnan Nujiang Fugong Guquan River Hydropower Station		
Applied Methodology / Version:	ACM0002 / Version 06	**Scope(s):**	1

First PDD Version:		**Final PDD version:**	
Date of issuance:	2007-04-23	Date of issuance:	2008-07-24
Version No.:	02	Version No.:	05
Starting Date of GSP	2007-07-02		

Estimated Annual Emission Reduction:	83 964 tCO_2e

Assessment Team Leader:	**Further Assessment Team Members:**
Dr. Sven Kolmetz	Tom Xiong Sebastian Randig Cyprian Fusi Karin Wagner

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:

Yunnan Nujiang Fugong Guquan River Hydropower Station

1.2 Scope

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

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

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

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

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

2 METHODOLOGY

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

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

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

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

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

Validation Protocol Table 1: Conformity of Project activity and PDD				
Checklist Topic / Question	**Reference**	**Comments**	**PDD in GSP**	**Final PDD**
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 (Tom)Xiong	GHG-A	☑	☑	☑
Sebastian Randig	GHG-A	☑	☑	
Cyprian Fusi	T		☑	
Karin Wagner	T		☑	

Dr. Sven Kolmetz is physicist and ATL at the department "TÜV Carbon Management Service" located in the head office of TÜV SÜD Industrie Service GmbH in Munich, Germany. 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.

Rencheng (Tom) 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.

Sebastian Randig is a GHG auditor for environmental management systems at the "Carbon Management Service" in the head office of TÜV Industrie Service GmbH, Germany. He holds a M.Sc. degree in Renewable Energy and has gathered experience in planning and installing renewable energy installations before joining TÜV SÜD. He has received training in the CDM validation process and participated in several CDM project assessments.

Cyprian Fusi is a GHG auditor (Trainee) for environmental management systems at the "Carbon Management Service" in the head office of TÜV SÜD Industrie Service GmbH, Germany. He holds a Dipl.-Ing (M.Sc) degree in electrical engineering with a speciality in Radio Frequency / Microwave

(RF/MW) engineering. He has received training in the CDM validation and verification processes and has participated in several CDM project audits and workshops.

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.

2.2 Review of Documents

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

2.3 Follow-up Interviews

On July 11th, 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. Pan Dehai	Fugon Hongyuan Hydropower Development Co. Ltd.
Mr. Yang Aimin	Beijing Tianqing Power International CDM Consulting, Co., Ltd
Ms. Jasmine Tang	Beijing Tianqing Power International CDM Consulting, Co., Ltd.
Mr. Andrea Camponogara	RWE-ENECORE CARBON

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.

2.4 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

The assessment work and the main results are described below, including a short summary of the type of the project activity, the resolution of the requests raised by the DOE as well as the assessment and outcome of the additionality and the emission reduction calculations. A more detailed description of the findings and their resolution can be found in Annex 1, Table 2.

History of the validation process

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

Project description

The following description of the project could be verified during the on-site audit:

The Yunnan Nujiang Fugong Guquan River Hydropower Station project involves the construction and operation of a 22 MW run-of river hydropower plant at the Guquan River, in the Yunnan Province, in Southern China. The plant is expected to operate about 5400 hours per year, resulting in a total electricity generation of 117720 MWh annually. The net electricity supplied to the grid is estimated to be about 99560 MWh per year.
The generated power will be supplied to the Southern Chinese Power Grid and therefore replace power typically generated by thermal fossil-fuel fired power plants.

Findings

In total, the assessment team expressed 9 Corrective Action Requests and 2 Clarification Requests on the following issues:

1) Revision history of the PDD should be indicated (CAR1)
2) The geographic location of the project activity should be clearly identified (CAR2)
3) Conflicting generator information found in PDD and on the ground (CAR3)
4) Training schedules for CDM monitoring staff (CAR4)
5) Time schedule for the implementation of the project should be included in the PDD (CAR5)
6) Conflicting values of IRR with CER income in PDD and spreadsheet; power sale as variable parameter in sensitivity analysis (CAR6)
7) Insufficient common practice analysis and related proofs are not available (CAR7)
8) The use of default values and sources indicated in the PDD (CAR8)
9) Graphical representation of all power meters' locations be included in the PDD (CAR9)

A clarification request was issued on insufficient explanations of noncompliance of certain alternatives to project activities on Chinese laws (CR1) and another on the rationale for the chosen starting date for the project activity (CR2).

The responses to all the CARs and CRs from the project participants were found to be satisfactory and the PDD is considered to comply with UNFCCC criteria.

Baseline calculation

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

The operating margin emission factor (EF_{OM}) was determined based on the simple OM method. The ex-ante option was chosen for this calculation.

The calculation of the build margin emission factor (EF_{BM}) was based on modified methods agreed by the EB, because plant specific data are not available in China. The emission factor of the thermal power plants was calculated by the proportion of the emissions of coal, gas and oil times the emission factor of the best available coal, gas and oil power plant as defined and published by the Chinese DNA. The new thermal capacity installation that exceeded 20% in the last years, for which data was available, was finally assessed with this factor.

The values for EF_{OM} and EF_{BM} calculated for the project were similar to the values indicated in the latest publication of the NDRC (August 2007). However, the data published by the NDRC is based on inaccurate emission factors of coke and refinery gas and outdated values for the imported electricity from the connected grids. The amendment of the calculation which is based on the proper emission factors and the latest data for the imported electricity that is presented in the IPCC 2006 guidelines and in the published data released by the State Grid Company results in slightly higher emission factors.

Therefore, the slightly lower values presented in the PDD that are adopted from the NDRC table can be considered as more conservative and are accepted for the baseline calculations. The value for the combined margin emission factor (EF_{CM}) was determined using the weighted average of the EF_{BM} and EF_{OM} using the default values for the factors as described in the methodology (i.e. 0.5 for hydro plants).

Neither project emission nor leakage needs to be considered for this type of project activity as per the methodology.

Hence, the overall emission reductions equal the baseline emissions.

TÜV SÜD validated the process presented in the PDD to calculate the emission reductions and confirms that the calculations are in line with the methodology and also presented in a transparent manner.

Additionality

The additionality of this project as well as the timeline with respect to the early consideration of CDM was checked thoroughly by the assessment team.

The chronological listing of the major events associated with the proposed project activity clearly indicates that CDM was seriously considered before the starting date. The project started with the signing of the equipment purchase contract on May 20, 2005 (IRL 23). Prior to that date, CDM was seriously taken into consideration which was demonstrated by several events and actions described as following:

An initial feasibility study was performed in January 2005 (IRL 7). During the investigations, it turned out that the project is facing a significant investment risk due to its remote location. A Simple Economic Analysis Report was issued in March 2005 (IRL 8) that indicated the low project IRR of 8.26% compared to a benchmark of 10% and suggested to look for measures that reduce the investment risk.

After several discussions and meetings in April 2005 (IRL 24), it was decided to apply for CDM in order to make the project financially attractive. As a result, the project owner signed a CDM development contract with Power Enterprises Association of Dehong Prefecture (IRL 98) and applied for approval of the project as a CDM project at the local government (IRL 39). About four weeks later,

the project owner received this approval from the local government that the implementation of this project as a CDM project will be supported (IRL 39). Once it was clear, that this project can be implemented as a CDM project, the project owner bought the necessary equipment the same day (i.e. May 22, 2005) (IRL 23), which is also considered as the starting date of the project activity.

However, it took almost two years until the first draft of the PDD was submitted to the Chinese DNA for its approval. The reason for this delay was due to the lack of knowledge and the inability of the first CDM consultant (i.e. Power Enterprises Association of Dehong Prefecture). As a result the project owner signed a new CDM development contract with Beijing Tianqing Power International CDM Consulting, Co., Ltd. in July 2006 (IRL 99). This company completed the first version of the PDD within six months.

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

The steps of the tool for the demonstration and assessment of additionality (hereafter: additionality tool) were applied correctly and demonstrate clearly that this project activity is not a baseline scenario and that the emission reductions are hence additional. The individual steps are discussed below.

As part of the first step of the additionality tool, one alternative scenario was identified that is in line with currently enforced laws and regulations in China and that does not face any barriers. TÜV SÜD was able to verify the existence of this scenario and can also confirm that this alternative is realistic and credible. Hence, the requirements of step one of the additionality tool were fulfilled successfully.

The benchmark analysis was applied in step two of the additionality tool to demonstrate that the project activity is not economically or financially feasible without the revenue from the sale of CERs. The applied benchmark of 10% (project, after tax) indicated in the Simple Economic Analysis Report (IRL 8) and also suggested in the “Economic evaluation code for small hydropower projects” (SL16-95, IRL 31) is widely accepted in the Chinese power sector for hydropower plants with a capacity of less than 50 MW and was therefore found to be appropriate for this project activity.

TÜV SÜD performed a thorough review of the input parameters used for the calculation of the IRR of the project. The key input parameters such as total investment, O&M costs, power generation and the tariff were derived from the values presented in the Supplementary Economic Evaluation Report (IRL 88, 94). Although this report was published about half a year after the investment decision, the same values were indicated in the Simple Economic Analysis Report, which is a draft version of the Supplementary Economic Evaluation Report that was issued in March 2005 (IRL 8) and are therefore considered as valid and applicable at the time of the investment decision.

TÜV SÜD 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. Investment costs were calculated at approximately 4.5 Mio RMB/MW, which are significantly lower than the average cost of 6.7 Mio RMB/MW, and can therefore be considered as conservative in the CDM/additionality context. An estimate of the price of the construction work and the equipment was made in November 2007 (IRL 103), indicating that the overall price for the implementation of the project is slightly higher than the applied investment costs for the investment analysis performed as part of the PDD (i.e. 107 Mio RMB and 99 Mio RMB, respectively). Hence, the applied investment costs can be considered as applicable and realistic.

The O&M costs equal about 2.5% of the total investment costs, and are thus equal to the average of 2.5% based on TÜV SÜD’s internal statistics. The plant is estimated to operate about 5300 hours per year, resulting in a load factor of approximately 60%, which is significantly higher than the average (i.e. 44%).

A so-called ‘coefficient of effective electricity’ of 85% is applied resulting in a total power generation of almost 120000 MWh per year, but a net supply of only approximately 100000 MWh per year. This factor is also indicated in the Supplementary Economic Evaluation Report (IRL 8), as well as in the electricity sales invoice (IRL 102) and a note published by the local grid company (IRL 101). In addi-

tion, the SL16-95 document (IRL 31) further refers to these factors. The 15% loss is associated with the surplus of electricity during the wet season, when the grid is not able to buy all of the power that could potentially be generated by the plants. TÜV SÜD checked the supplied documents and confirms that a 15% loss is deemed reasonable and was also well known at the time of the investment decision.

The applied tariff of 0.153 RMB/kWh is lower than the average of 0.24 RMB/kWh (net tariff) resulting from TÜV SÜD's internal statistical evaluations from hydropower projects all over China. The tariff used for the IRR calculation (i.e. 0.153 RMB/kWh) includes taxes, however, the taxes were not deducted for the IRR calculation, but in the CDM/additionality context this can be considered as conservative and was therefore accepted by TÜV SÜD. This low tariff was not only indicated in the economic analyses reports but also supported by two other documents: 1) the local grid company (Yunnan Nujiang Grid Company) released a note in February 2005 (i.e. before the investment decision was made), that the average grid price is only 0.153 RMB/kWh (including taxes) due to relatively long transmission lines and resulting losses (IRL 101); 2) an actual sales receipt from May 2008 indicated that indeed, the tariff is actually even lower with 0.1335 RMB/kWh (including taxes, IRL 102). Therefore, TÜV SÜD considered the applied tariff as valid and realistic.

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.

The IRR (project, after tax) was calculated at 8.26% and also indicated in the economic analysis (IRL 8), well below the benchmark of 10% and hence in the absence of additional revenues through CDM not financially attractive.

The sensitivity analysis was conducted on the project activity for the critical parameters like total investment, annual O&M costs as well as annual power supply and the tariff. The results indicated that the IRR does not overcome the benchmark, thereby demonstrating that the project activity is not viable without any CDM revenues. TÜV SÜD confirms that a 10% variation is deemed reasonable and was also observed for similar projects in the past.

As per the additionality tool, step three can be skipped if the requirements indicated in step two are discussed clearly and also met. Therefore, step three was skipped for this project activity.

The last step of the additionality tool, the common practice analysis could also be verified by TÜV SÜD and deemed to be acceptable and realistic. It was demonstrated by an analysis of the existing hydropower projects in the same province that there is a total of eight similar projects in the area (i.e capacity between 0.5 MW and 50 MW, and implemented after 2002 when several changes of the regulations for the generation of electricity were implemented in China). The capacity range of up to 50 MW is in line with Chinese sub-division into small-scale, mid-scale and large scale hydropower plants and thus realistic and plausible. However, the reference used to list all hydro plants with a capacity of less than 50 MW in the province does not include any plants of less than 15 MW in their statistics. Since the version 5 of the additionality tool is applied, similar projects can be excluded from the analysis if necessary information is not accessible. Hence, the list of similar projects can be considered as complete and in line with latest EB requirements.

Six of these projects are either developed by state-owned entities and/or are enjoying favourable investment opportunities supported by the local government. The remaining two hydropower plants were facing lower investment costs due to easier accessible locations, therefore making the project feasible without CDM.

TÜV SÜD confirms that it was clearly demonstrated that essential and also plausible and realistic distinctions exist between the project activity and similar activities.

In summary, it is sufficiently demonstrated that the requirements for the additionality are fulfilled and that the project's emission reductions are additional.

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 net electricity supplied by the Guquan River Power Station to the Latudi 110 kV switching substation is measured by a bi-directional meter (called meter M5 in the PDD). In addition, the power imported from the grid by the Guquan River Power Station is also monitored (called meter M4 in the PDD), and subtracted from the net electricity supplied to the grid.

Prior to the installation of the Latudi station, the net electricity provided by the Guquan River station and the Zema River station will be measured individually (i.e. M2 and M3, respectively). In addition, the overall net electricity delivered to the grid will be measured (M1), and line losses are taken into account by comparing the electricity flow of each meter. The whole system was checked thoroughly by TÜV SÜD and found to be appropriate and plausible.

All electricity is measured continuously and recorded monthly. 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: http://www.netinform.net/KE/Wegweiser/Guide2_3.aspx?ID=3298&Ebene1_ID=26&Ebene2_ID=999&mode=0	
Starting date of the global stakeholder consultation process: 2007-07-02	
Comment submitted by: none	**Issues raised:** -
Response by TÜV SÜD: -	

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5 VALIDATION OPINION

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

Yunnan Nujiang Fugong Guquan River Hydropower Station.

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 cannot be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 2008-07-31

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

Munich, 2008-07-31

Assessment Team Leader

Industrie Service

Annex 1: Validation Protocol

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Table 1 Conformity of Project Activity and PDD

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A. General description of project activity					
A.1. Title of the project activity					
A.1.1.	Does the used project title clearly enable to identify the unique CDM activity?	1, 2	The project is titled with the name of the project location, and the energy source of the project. Hence, it can be clearly identified.	☑	☑
A.1.2.	Are there any indication concerning the revision number and the date of the revision?	1, 2	The available PDD is indicated as 2nd version dated April 23, 2007. <u>Corrective Action Request 1:</u> A revision history of the PDD should be included.	CAR 1	☑
A.1.3.	Is this consistent with the time line of the project's history?	1, 2, 6, 9, 10,11, 12, 13, 14, 15, 16	The GSP has been started with this version. The project Environmental Impact Assessment (EIA) was approved on 19/05/2005 by the Environment Protection Bureau of Nujiang Lisu Autonomous Prefecture. The project Feasibility Study Report (FSR) was approved on 16/06/2005 by the Development and Reform Commission of Nujiang Lisu Autonomous Prefecture. Project construction started in May, 2005 and the project has been operational in Dec., 2007.	☑	☑
A.2. Description of the project activity					
A.2.1.	Is the description delivering a transparent overview of the project activities?	1, 2	The project is described transparently. It is a run-of-river hydro power project, located in the middle reaches of Guquan River, Fugong County. The total installed capacity is 22MW. On the average, the project activity is expected to operate 5,351hours per year, which corresponds to an average power generation of 117,720MWh and a net electricity supply to the grid of 99,560MWh. The power generated will be connected to the local grid, then to the Yunnan Grid and finally, to the Southern Grid.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A.2.2.	What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	1, 2, 6, 9, 10,11, 12, 13, 14, 15, 16	The project activity is the displacement of electricity generated by coal fired power plants with electricity generated by hydro power. The following documents deliver evidences for the project activity: - Feasibility study and its approval - EIA and EIA approval - Approval of Land Expropriation 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	Yes, it is.	☑	☑
A.3. Project participants					
A.3.1.	Is the form required for the indication of project participants correctly applied?	1, 2	The form is correctly applied. In Table A.1 and Annex 1 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 The letter of approval from the China DNA is not yet emitted. They should be provided to the DOE before submitting for registration. The German LoA has not yet been received but a request for registration will not be submitted until this letter is received.	Open Issue	
A.3.3.	Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	1, 2	Yes, it is.	☑	☑

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 proposed project activity is located in the middle reaches of Guquan River, which is the branch of Nujiang River, in Fugong County, Nujiang Lisu Autonomous Prefecture, Yunnan Province, China. The proposed project is located 143km from Liuku Town and 749km from Kunming City. The project will construct two intake dams, of which, No.1 dam is 0.8km downriver from the junction of Wuke River and Mozhimo River, its exact location being latitude 26°51'15" N and longitude 98°48'10" E; and No.2 dam, which is 1.25km downriver from the junction of Qianshui River and Jiajidu River, with exact location being latitude of 26°50'48" N and longitude 98°48'37" E. The station is upper 2.2km upstream from the junction of Qianshui River and Nujiang River. <u>Corrective Action Request 2 :</u> The information provided on the location of project activity can't allow for a clear identification of the site, especially the geographical coordinates should be checked.	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*				

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A.4.3.1. Does the technical design of the project activity reflect current good practices?	1,2	Yes, the project design reflects the current good practices based on the description in 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 be applied provide sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance?	1,2	Yes, the project activity comprises the use of water power for the substitution of grid supplied electricity mainly from coal fired plants. Therefor inter alia two units of CJA475-L-165/2×12 turbines, and two units of SF11-10/2860 generators matched with turbines with the total installed capacityof 22MW are utilised. 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	The generator type provided by the PDD does not match with the actual data of the installed components. Corrective Action Request 3: Clarify the mismatch between the actual data and the PDD data.	CAR 3	☑
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	Because the technology of installing a new hydropower plant has been fully developed and successfully implemented over China for decades, 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	We do not expect that there will be a substitution because the equipments have been installed and the expected starting date of electricity generation is Dec., 2007. The life time of the project is under normal circumstances longer than the crediting period.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A.4.3.8. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	1,2	With relevance to the CDM monitoring, a monitoring officer will receive training on the monitoring methodologies, procedures and archiving by Beijing Tianqing Power International CDM Consulting Co. Ltd. Then, the monitoring officer will train the project staff in charge for CDM monitoring. <u>Corrective Action Request 4:</u> Please specify the effort to train the employees initially and during the operation phase.	CAR 4	☑
A.4.3.9. Is information available on the demand and requirements for training and maintenance?	1,2	See A.4.3.8. above, CAR	See CAR 4	☑
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 is at a rather developed stage now, we do not expect severe delays. 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. <u>Corrective Action Request 5:</u> The time schedule of the implementation of the project should be included in the PDD.	CAR 5	☑
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	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	Yes, they are. The yearly emission reduction is estimated to amount 83,964 tCO2e. The same figure is quoted throughout the PDD.	☑	☑
A.4.5. Public funding of the project activity				
A.4.5.1. Is the information provided on public fund-	1,2	According to the statement in A.4.5. of the PDD there is no public	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	ing provided in compliance with the actual situation or planning as available by the project participants?		funding for the project activity. By reviewing the financial documents on-site this statement could be 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.	☑	☑
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, it is ACM0002/Version 06 along with the *Tool for the Demonstration and Assessment of Additionality (version 5*)	☑	☑
B.1.2.	Is the applied version the most recent one and / or is this version still applicable?	1,2	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: 1. The proposed Project activity involves an electricity capacity addition from a run-of-river hydro power project; 2. The proposed Project activity does not involve fuel switching from fossil fuels to renewable energy at the site of the project activity; 3. The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the charac-	☑	☑

<table>
<tr><th colspan="2">CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td></td><td>teristic of the grid is available.</td><td></td><td></td></tr>
<tr><td>B.2.2.</td><td>Criterion 1:
Type of capacity addition by renewable energy</td><td>1,2</td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.2.3.</td><td>Criterion 2:
Exclusion of fuel switching activities</td><td>1,2</td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.2.4.</td><td>Criterion 3:
Defined electricity grid boundaries</td><td>1,2</td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.2.5.</td><td>Criterion 4:
Approved inclusion in other methodologies (if applied only)</td><td>1,2</td><td>N.A</td><td></td><td></td></tr>
<tr><td colspan="6">B.3. Description of the sources and gases included in the project boundary</td></tr>
<tr><td>B.3.1.</td><td>Source:
Fugitive Emissions from non-condensable gases (geothermal activities only)
Gas(es): CO_2, CH_4
Type: Project Emissions</td><td>1,2</td><td><table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed by the PDD?</td><td>N/A</td></tr><tr><td>Inclusion / exclusion justified?</td><td>N/A</td></tr><tr><td>Explanation / Justification sufficient?</td><td>N/A</td></tr><tr><td>Consistency with monitoring plan?</td><td>N/A</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		The project consists in grid-connected electricity generation from a run-of-river hydropower station. As per methodology ACM0002, CO_2, CH_4 emissions are not to be considered.		
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. The project consists in grid-connected electricity generation from a run-of-river hydropower station. As per methodology ACM0002, CO_2 emissions are not to be considered.	☑	☑
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? N/A; Inclusion / exclusion justified? N/A; Explanation / Justification sufficient? N/A; Consistency with monitoring plan? N/A. The project consists in grid-connected electricity generation from a run-of-river hydropower station. As per methodology ACM0002, CO_2, CH_4 emissions are not to be considered.	☑	☑
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.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.3.5. Source: Emissions from electricity generation in fossil fuel fired power plants of any connected electricity system Gas(es): CO_2 Type: Baseline Emissions	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	☑	☑
B.3.6. Source: Emissions from electricity generation in fossil fuel fired power plants of imported electricity Gas(es): CO_2 Type: Baseline Emissions	1,2	Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? N/A Inclusion / exclusion justified? N/A Explanation / Justification sufficient? N/A Consistency with monitoring plan? N/A 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 Southern China Power Grid. The Southern China Grid is a larger regional grid, which consists of four provincial sub-grids: Guangdong, Guangxi, Yunnan and Guizhou. 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 Southern China Grid.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
B.4.2.	In case of any modification or retrofit of existing facilities: Is data available to determine the historic production level?	1,2	N/A	☑	☑
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	N/A	☑	☑
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.	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: • The proposed hydropower activity, undertaken without being registered as a CDM project activity; • Thermal power generation plant with equivalent annual power generation; • Other renewable energy power plant with equivalent annual power generation or equivalent installed capacity; • The equivalent annual electricity is supplied by the Grid.	☑	☑
B.5.2.	Is the project activity without CDM included in these alternatives? (step 1a)	1,2	Yes, it is included as first option.	☑	☑
B.5.3.	Is a discussion provided for all identified alternatives concerning the compliance with applicable laws and regulations? (step 1b)	1,2	The conclusion in Sub-step 1b is that only the first and fourth alternatives are in compliance with Chinese relevant laws and regulation. Clarification Request 1:	CR 1	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			Please explain why the third alternative is not in compliance with Chinese relevant laws and regulation.		
B.5.4.	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.5.5.	In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)?	1,2	3 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 Southern China Grid; hence, Option II can't be adopted either. It deems that Option III (benchmark analysis) is the only applicable one.	☑	☑
B.5.6.	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.5.7.	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.5.8.	In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1,2	Yes, the IRR is selected as the most suitable financial indicator.	☑	☑
B.5.9.	In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives	1,2	<u>Corrective Action Request 6:</u> 1) The IRR with CDM revenues provided by PDD is 10.8%, but it is 11.54% in IRR calculation spreadsheet, please clarify the	CAR 6	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	and the project activity?		inconsistency. 2) Include the variations of revenue of electricity sale instead of power supplier to the grid as parameter into sensitivity analysis. 3) The *Supplementary Economic Evaluation*, *dated in September 2005*, should be provided in English.		
B.5.10.	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 B.5.11. above, CAR	See CAR 6	☑
B.5.11.	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	Not applicable.	☑	☑
B.5.12.	In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and significance of these barriers?	1,2	Not applicable.	☑	☑
B.5.13.	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	Not applicable.	☑	☑
B.5.14.	Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD (step 4a)?	1,2	Basic information about similar projects in Yunnan Province in operation since the year 2000 and with an installed capacity between 15 and 50 MW, are given in Table B.4, Chapter B.5. of the PDD. The common practice analysis is not sufficient and related proofs are not available. <u>Corrective Action Request 7:</u>	CAR 7	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Reference documents and data sources must be delivered to DOE.		
B.5.15. 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. See B.5.16. above, CAR	See CAR 7	☑
B.5.16. Is it appropriately explained how the approval of the project activity will help to overcome the economic and financial hurdles or other identified barriers (step 5)?	1,2	Not applicable.	☑	☑
B.6. Emissions reductions				
B.6.1. Explanation of methodological choices				
B.6.1.1. Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	1, 2	The calculation of the emission reduction is applied according to the steps described in ACM0002: - Calculation of the Operating Margin Emission Factor - Calculation of the Build Margin Emission Factor - Calculation of the Combined Margin Emission Factor These steps are described in a transparent manner.	☑	☑
B.6.1.2. Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	1, 2	Yes, every selection of options offered by the methodology is correctly justified and this justification is in line with the situation verified on-site.	☑	☑
B.6.1.3. Are the formulae required for the determination of project emissions correctly pre-	1,2	Not applicable The project activity is a run-of-river hydropower project. Therefore,	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	sented, enabling a complete identification of parameter to be used and / or monitored?		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 in the PDD. $BE_y = (EG_y - EG_{baseline}) \times EF_y$ <u>Corrective Action Request 8:</u> Values from the IPCC 2006 should be used, not 1996. The parameters should be actualized. Where applicable the parameter should be updated using as a source of data also the "China Electric Power Yearbook 2006" and "China Energy Statistical Yearbook 2006" that has been already published.	CAR 8	☑
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 B.6.1.6.	☑	☑
B.6.1.8.	Are the formulae required for the determi-	1,2	No leakage is considered according to the methodology. Based	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	nation of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?		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 (B.12) $ER_y = BE_y = EG_y \times EF_y$	☑	☑
B.6.2.	*Data and parameters that are available at validation*				
B.6.2.1.	Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	1,2	Yes. A list of parameters is presented according to ACM0002.	☑	☑
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	For the calculation of the emission reductions the ex-ante approach has been used.	☑	☑
B.6.2.3.	Parameter Title: Annual electricity supplied to the grid prior to retrofit (applicable only for retrofit and modification activities)	1, 2	Data Checklist / Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided? N/A Has this value been verified? N/A Choice of data correctly justified? N/A Measurement method correctly described? N/A	☑	☑
B.6.2.4.	Parameter Title: Emission factor of the grid (CM)	1, 2	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes … is calculated as a combined margin: the weighted average of the operating margin emission factor ($EF_{OM,y}$) and the build margin emission factor ($EF_{BM,y}$).		
B.6.2.5. Parameter Title: Operating margin (OM) emission factor of the grid	1, 2	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes The simple OM method was chosen to calculate the OM, $EF_{OM,simple,y}$ (see Equation B.1).	☑	☑
B.6.2.6. Parameter Title: Build margin (BM) emission factor of the grid	1, 2	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Choice of data correctly justified? Yes Measurement method correctly described? Yes …, $EF_{BM,y}$ is calculated as the generation weighted average emission factor (measured in tCO_2e/MWh) of a sample of *m* power plants (see Equation B.3).		
B.6.2.7. Parameter Title: fuel consumption of each power source	1, 2	Data Checklist — Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes Fuel consumption of thermal power plants: *China Energy Statistical Yearbook* (2001-2005).	☑	☑
B.6.2.8. Parameter Title: emission coefficient of each fuel	1, 2	Data Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided? N/A Has this value been verified? N/A Choice of data correctly justified? N/A Measurement method correctly described? N/A	☑	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.6.2.9. Parameter Title:
electricity generation of each power source</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>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.10. Parameter Title:
surface area of full reservoir level
(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></td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.11. Parameter Title:
fraction of time with low costs /must run plant at the margin
(for simple adjusted OM 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></table></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Measurement method correctly described? N/A		
B.6.2.12. Parameter Title: electricity imports	1,2	Data Checklist / Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided? N/A Has this value been verified? N/A Choice of data correctly justified? N/A Measurement method correctly described? N/A	☑	☑
B.6.2.13. Parameter Title: CO_2 emission coefficient of fuels used in connected grids	1,2	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes	☑	☑
B.6.3. Ex-ante calculation of emission reductions				
B.6.3.1. Is the projection based on the same procedures as used for future monitoring?	1,2	Yes, it is.	☑	☑
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	1,2	Yes, they are	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
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, it is.	☑	☑
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, depending on the project nature 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	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 indicated in 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	☑	☑
B.7. Application of the monitoring methodology and description of the monitoring plan				
B.7.1. Data and parameters monitored				
B.7.1.1. Is the list of parameters presented by chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?	1,2	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.	☑	☑
B.7.1.2. Parameter Title: Electricity supplied to the grid	1,2	Monitoring Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Source clearly referenced? Yes Correct value provided for estimation? Yes Has this value been verified? Yes Measurement method correctly described? Yes Correct reference to standards? Yes Indication of accuracy provided? Yes QA/QC procedures described? Yes QA/QC procedures appropriate? Yes		
B.7.1.3. Parameter Title: Quantity of steam produced (for geothermal projects only)	1,2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑
B.7.1.4. Parameter Title: Fraction of CO_2 in steam produced (for geothermal projects only)	1,2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A		
B.7.1.5. Parameter Title: Fraction of CH_4 in steam produced (for geothermal projects only)	1,2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑
B.7.1.6. Parameter Title: Quantity of steam generated during well testing (for geothermal projects only)	1,2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A		
B.7.1.7. Parameter Title: Fraction of CO_2 in steam during well testing (for geothermal projects only)	1,2	Monitoring Checklist: Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑
B.7.1.8. Parameter Title: Fraction of CH_4 in steam during well testing (for geothermal projects only)	1,2	Monitoring Checklist: Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A		
B.7.1.9. Parameter Title: CO_2 emission coefficient of fuel used by the geothermal plant (for geothermal projects only)	1,2	Monitoring Checklist / Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑
B.7.2. Description of the monitoring plan				
B.7.2.1. Is the operational and management structure clearly described and in compliance with the envisoned situation?	1,2	Yes, it is. See B.7.2 (Monitoring Organization, Monitoring Equipment and Program, Data Collection, Calibration, Data Management) and Annex 4 (Tasks and Responsibilities) 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	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		and recording, collects data (meter's data reading, sales/billing receipts), calculates emission reductions and prepares a monitoring report. See B.7.2. and Annex 4 of the PDD.		
B.7.2.3. Does the monitoring plan provide current good monitoring practice?	1,2	Yes, see B.7.2. and Annex 4 of the PDD..	☑	☑
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 9: A diagram of the location of the power meters should be included. It should be transparent that for the calculation of the emission reduction only the net electricity produced by this plants will be used.	CAR 9	☑
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 2008-5-15.	☑	☑
B.8.2. Is this consistent with the time line of the PDD history?	1,2	Yes, it is. See also A.1.3.	☑	☑
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	Beijing Tianqing Power International CDM Consulting, Co., Ltd and Enecore Carbon Limited determined the monitoring methodology.	☑	☑
B.8.4. Is information provided whether this person / entity is also considered a project participant?	1,2	The above mentioned bodies are no project participants.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
C. Duration of the project activity / crediting period					
C.1. Duration of the project activity					
C.1.1.	Are the project's starting date and operational lifetime clearly defined and reasonable?	1,2	The project starting date is given as July 2005 in the PDD. Clarification Request 2: Please clarify what activity is linked with the starting date.	CR 2	☑
C.2. Choice of the crediting period and related information					
C.2.1.	Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	1,2	7 years with potential for 2 renewals is chosen as the crediting period, because the expected operational lifetime of the project activity is 20 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, 7, 9	Yes, the environmental impacts of the project activity such as noise, visual impacts, interference with communication, land use, air quality and water usage have been clearly described.	☑	☑
D.1.2.	Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved?	1,2, 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 Yunnan Environment Protection Bureau on May 19, 2005.	☑	☑
D.1.3.	Will the project create any adverse environmental effects?	1,2, 7, 9	Referred to the EIA and the approval of EIA, the project will create no negative environmental impacts.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
D.1.4.	Were transboundary environmental impacts identified in the analysis?	1,2, 7, 9	There is no trans-boundary impact described in EIA report or approval of EIA.	☑	☑
D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party					
D.2.1.	Have the identified environmental impacts been addressed in the project design sufficiently?	1,2, 7, 9	Refer to the EIA and the approval of EIA, there is no adverse environmental impact from the project activity.	☑	☑
D.2.2.	Does the project comply with environmental legislation in the host country?	1,2, 7, 9	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, 29	A local stakeholder consultation meeting was organized on January 28 2007, after a questionnaire had been distributed among the residents.	☑	☑
E.1.2.	Have appropriate media been used to invite comments by local stakeholders?	1,2, 29	The meeting announcement was published on the newspaper "*Nujiang Paper"* on Jan. 26, 2007 with the aim to gather the largest audience. The meeting was also advertised via the website of www.tgcdmchina.com.	☑	☑
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, 29	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	1,2,	Yes. The process is described in a complete and transparent	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	that was carried out described in a complete and transparent manner?	29	manner (questionnaire distribution, meeting announcement, stakeholder meeting).		
E.2. Summary of the comments received					
E.2.1.	Is a summary of the stakeholder comments received provided?	1,2, 29	Yes, see E.2 and E.3 of the PDD	☑	☑
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, 29	Referring to the PDD and filled questionnaires which were gathered from participants and reviewed by the auditor on site, almost all stakeholder comments are positive.	☑	☑
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, it is.	☑	☑
F.1.2.	Is the information on all private participants and directly involved Parties presented?	1,2	Yes, it is.	☑	☑
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	1,2	N.A., see F.1.3.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	that any such funding from Annex-I-countries does not result in a diversion of ODA?				
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	Yes, the data are verifiable and evidenced.	☑	☑
F.1.7.	Does the additional information substantiate / support statements given in other sections of the PDD?	1,2	Yes, it does.	☑	☑
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	The monitoring plan is described in Annex 4 and its information is consistent with the data presented in section B.7 of the PDD.	☑	☑
F.1.9.	Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	1,2	Yes, the information is verifiable and evidenced.	☑	☑
F.1.10.	Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	1,2	Yes, it does.	☑	☑

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
The available PDD is indicated as 2nd version dated April 23, 2007. <u>Corrective Action Request 1:</u> A revision history of the PDD should be included.	A.1.2	We have inserted the revision history of the PDD in section A.1.	☑ This issue is considered to be resolved.
The proposed project activity is located in the middle reaches of Guquan River, which is the branch of Nujiang River, in Fugong County, Nujiang Lisu Autonomous Prefecture, Yunnan Province, China. The proposed project is located 143km from Liuku Town and 749km from Kunming City. The project will construct two intake dams, of which, No.1 dam is 0.8km downriver from the junction of Wuke River and Mozhimo River, its exact location being latitude 26°51'15" N and longitude 98°48'10" E; and No.2 dam, which is 1.25km downriver from the junction of Qianshui River and Jiajidu River, with exact location being latitude of 26°50'48" N and longitude 98°48'37" E. The station is upper 2.2km upstream from the junction of Qianshui River and Nujiang River. <u>Corrective Action Request 2 :</u> The information provided on the location of project activity can't allow for a clear identifi-	A.4.1.1	We got the geographical coordinates of the dam from the Feasibility Study Report, please find it in another separate document which shows the source of the geographical coordinates. Furthermore, We have changed the map to make sure it can allow a more clear identification of the site.	☑ This issue is considered to be resolved.

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
cation of the site, , especially the geographical coordinates should be checked.			
The generator type provided by the PDD does not match with the actual data of the installed components. <u>Corrective Action Request 3:</u> Clarify the mismatch between the actual data and the PDD data.	A.4.3.5	We had changed the generator type in table A.1 on page 5 based on the actual data.	☑ This issue is considered to be resolved.
With relevance to the CDM monitoring, a monitoring officer will receive training on the monitoring methodologies, procedures and archiving by Beijing Tianqing Power International CDM Consulting Co. Ltd. Then, the monitoring officer will train the project staff in charge for CDM monitoring. <u>Corrective Action Request 4:</u> Please specify the effort to train the employees initially and during the operation phase.	A.4.3.8 A.4.3.9	We had inserted the initially training and training in the operation period for the employees in section A.4.3.	☑ This issue is considered to be resolved.

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
As the project is at a rather developed stage now, we do not expect severe delays. 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. <u>Corrective Action Request 5:</u> The time schedule of the implementation of the project should be included in the PDD.	A.4.3.10	We had inserted a schedule of implementation the project in table A.2 of the PDD.	☑ This issue is considered to be resolved.
<u>Corrective Action Request 6:</u> 1) The IRR with CDM revenues provided by PDD is 10.8%, but it is 11.54% in IRR calculation spreadsheet, please clarify the inconsistency. 2) Include the variations of revenue of electricity sale instead of power supplier to the grid as parameter into sensitivity analysis. 3) The *Supplementary Economic Evaluation*, *dated in September 2005*, should be provided in English.	B.5.11 B.5.12	1) We had made some mistakes on the IRR with CDM revenues; furthermore, because the annual emission reductions had been changed due to the revision of EF calculation, we finally get the IRR with CDM revenues as 12.30% instead of 10.8%. 2) We had use the variations of revenue of electricity sale instead of power supplied to the grid as parameter to sensitivity analysis in IRR calculation spreadsheet. 3) We have translated the *Supplementary Economic Evaluation* and please find it in another separate document.	☑ The documents submitted by PP have been verified by local auditor
Basic information about similar projects in Yunnan Province in operation since the year 2000 and with an installed capacity between 15 and 50 MW, are given in Table B.4, Chapter B.5. of the PDD. The common practice analysis is not sufficient and related proofs are not available. <u>Corrective Action Request 7:</u>	B.5.16 B.5.17	We had revised the common practice and put the data sources as footnotes on page 14-15 in section B.5.	☑ The reference documents and links have been verified by local auditor.

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Reference documents and data sources must be delivered to DOE.			
Corrective Action Request 8: Values from the IPCC 2006 should be used, not 1996. The parameters should be actualized. Where applicable the parameter should be updated using as a source of data also the "China Electric Power Yearbook 2006" and "China Energy Statistical Yearbook 2006" that has been already published.	B.6.1.4	We had revised the EF calculation based on IPCC 2006 and the "China Electric Power Yearbook 2006" and "China Energy Statistical Yearbook 2006" in section B.6.1.	☑ This issue is considered to be resolved.
Corrective Action Request 9: A diagram of the location of the power meters should be included. It should be transparent that for the calculation of the emission reduction only the net electricity produced by thi plants will be used.	B.7.2.4	We have inserted a diagram that shows how to calculate the net electricity produced by the project in section B.7.2.	☑ This issue is considered to be resolved.
The conclusion in Sub-step 1b is that only the first and fourth alternatives are in compliance with Chinese relevant laws and regulation. Clarification Request 1: Please explain why the third alternative is not in compliance with Chinese relevant laws and regulation.	B.5.5	Actually, the third alternative is in compliance with Chinese relevant laws and regulations. We have not analyzed it in sub-step 1b is because we had excluded it in sub-step 1a because the renewable resources is unavailable and some technology barriers	☑ This issue is considered to be resolved.

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
The project starting date is given as July 2005 in the PDD. <u>Clarification Request 2:</u> Please clarify what activity is linked with the starting date.	C.1.1	We had revised the date to start construction date and clarified it section C.1.	☑ This issue is considered to be resolved.
<u>Open Issue</u> The letter of approval from the China DNA is not yet emitted. They should be provided to the DOE before submitting for registration.	A.3.2.	Please find China LOA in another separate document.	The request for registration will not be submitted until both LoAs were received.

Annex 2: Information Reference List

Reference No.	Document or Type of Information
1	Project Design Document for CDM project “Yunnan Nujiang Fugong Guquan River Hydropower Station”, version 2 (April 23, 2007). Final version 5, dated on 24/07/2008.
2	Consolidated baseline methodology for grid-connected electricity generation from renewable sources, ACM0002, version 06.
3	Tool for the demonstration and assessment of additionality, version 05.
4	Participant list of on-site interview, signed on July 11, 2007
5	On-site interviews and inspection conducted on July 11, 2007 by validator of TUV-SUD. Validation team: Mr. Tom Xiong Jiangsu TÜV Product Service, Shenzhen Branch Interviewed persons: Mr. Pan Dehai Fugon Hongyuan Hydropower Development Co. Ltd. Mr. Yang Aimin Beijing Tianqing Power International CDM Consulting, Co., Ltd. Ms. Jasmine Tang Beijing Tianqing Power International CDM Consulting, Co., Ltd. Mr. Andrea Camponogara RWE-ENECORE CARBON
6	Approval of Yunnan Fugong Guquan River Hydropower Station, dated on June 16, 2005, Development and Reform Commission of Nujiang Lisu Autonomous Prefecture, file number: No.219 Nu Ji Ji Chou [2005].
7	Feasibility Study Report, dated in Jan. 2005.
8	Simple Economic Analysis Report, dated in March 2005.
9	EIA, dated in March 2005.
10	Approval of EIA, dated on May 19, 2005, Environmental Protection Bureau of Yunnan Province, file number: No.93 Yun Huan Xu Zhun [2005].
11	Water & Soil Conservation Program, dated in January, 2005
12	Approval of Water & Soil Conservation Program, dated on March 18, 2005, Water Conservancy Department of Yunnan Province, file number: No.25, Yun Shui Shui Bao [2005].

Reference No.	Document or Type of Information
13	Approval of Land Expropriation, dated on November 12, 2005, Land Management Department of Yunnan Province, file number: No.144 Yun Guo Tou Zi Fu [2005].
14	Approval of Temporarily Usage of Forest Land, dated on June 16, 2005, Forestry Department of Yunnan Province, file number: No.122 Yun Ling Ling Zhen [2005]
15	License of Land Usage, dated on December 13, 2005, Fugong Government.
16	Loan Contract, dated on December 1, 2005, signed with Fugong Branch of Agricultural Bank of China.
17	Agreement on Compensation for Land Expropriation, dated on July 10, 2005, signed with farmers in Guquan Village, Fugong County.
18	Agreement on Compensation for Water Right, dated on August 17, 2006, signed with farmers in Guquan Village, Fugong County.
19	Agreement on Compensation for Trees and Bamboos, dated in June, 2006, signed with farmers in Guquan Village, Fugong County.
20	Compensation for Paddy field
21	Receipts for all deserved Compensation
22	Emergency Plan for Inundation, Mud-rock flow, Landslip, dated on January 1, 2007.
23	Turbines and Generators Purchasing Agreement, dated in May 2005, signed with Kunming Electric Machinery Co., Ltd.
24	Meeting Minute about the Decision of Consideration for CDM support, dated on April 3, 2005.
25	The standard of compensation for land usage, dated on April 27, 2005, Fugong government office, file number: No.46 Fu Zhen Fa[2005]
26	Notice for Price of Electricity Connected to Yunnan Grid, dated on May 2, 2005, Development and Reform Commission of Yunnan Province, file number: No.792 Yun Fa Gai Jia Ge [2005].
27	Assessment Report of Water Resources, dated in December, 2004.
28	Approval of Assessment Report of Water Resources, dated on January 25, 2005, Water Conservancy Department of Nujiang Lisu Autonomous Prefecture, file number: No.8 Nu Shui Shui Zhen [2005].
29	Questionnaire of local stakeholder comments.
30	IRR calculation sheet
31	Economic Evaluation Code for Small Hydropower Project SL16-95
32	Notice on Strictly Prohibiting the Installation of Fuel Generators with the Capacity of 135MW or below issued by the General Office of the

Reference No.	Document or Type of Information
	State Council, file number: No.6 [2002].
33	The Management Provisional Regulation on the Construction of Small Fuel-fired Generators issued in Aug. 1997.
34	Bank Credit Policy Direction in 2005
35	China Energy Statistical Yearbook (2002/2003/2004/2005/2006)
36	China Electric Power Yearbook(2002/2003/2004/2005/2006)
37	Permission for Starting Main Construction, dated on July 16, 2005.
38	Seeking Local Government’s Support Letter, dated on Apr. 11, 2005.
39	The Asking for Instruction Letter of Apply Yunnan Fugong Guquan River Hydropower Station as CDM Project, Fugong Hongyuan Hydropower Development Co., Ltd., April 11, 2005. Reply from local government that they support the project owner apply CDM for the proposed project, dated on May 20, 2005.
40	Yearbook of China Water Resources 2006
41	http://www.checc.cn/zgsd/zgsd_zy.jsp
42	http://www.checc.cn/shuigis/province/provincedetail.jsp?provinceID=17
43	http://www.checc.cn/shuigis/province/provincedetail.jsp?provinceID=22
44	http://www.checc.cn/shuigis/province/provincedetail.jsp?provinceID=21
45	http://www.gov.cn/test/2005-07/29/content_18338.htm
46	Almanac of China’s Water Power (2005), page 141.
47	http://www.sp.com.cn/zgsd/tjzl/yunnan.htm
48	http://cdm.unfccc.int/UserManagement/FileStorage/WW0ONO7SW2DC8LE537BK8TEFP3FS2N
49	http://slx.zjwchc.com/sdz/sdz1/604.htm
50	http://www.yn.gov.cn/yunnan,china/72626041549488128/20050415/25579.html
51	http://www.7c.gov.cn/color/DisplayPages/ContentDisplay_455.aspx?contentid=9204
52	http://www.zhongguook.com/news/web/shangri-la/2004-03/1079363260.html

Reference No.	Document or Type of Information
53	http://business.sohu.com/20051228/n241172999.shtml
54	Power System Reform Blue Print, published by State Council, February 10, 2002.
55	http://0871.und.cn/small/cpybase.do?companyid=D658A7E06D9B41318F44FBF1B0E6C0E7
56	http://0871.und.cn/small/cpybase.do?companyid=D658A7E06D9B41318F44FBF1B0E6C0E7
57	http://cdm.unfccc.int/Projects/Validation/index.html
58	http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1774.pdf
59	http://www.wsdl.com.cn/introduce/
60	http://www.p5w.net/today/200804/t1589770.htm
61	http://mkt.und.cn/small/cpybase.do?companyid=6DF66BA0B8044174AEAC16B104ECD94C
62	http://www.ynsph.com.cn/
63	http://www.nut168.com/mrmq/mq/1559.html
64	http://www.khidi.com:8083/BMWeb/kmyjj/qygs.asp
65	http://www.ymc.com.cn/EN/1.htm
66	http://www.heqing.gov.cn/DefaultStyle/DefaultStyle_NewPage.aspx?PageId=24495&TagControlID=24502&LibInfoID=25536
67	http://www.smeyndl.gov.cn/readnews.asp?newsid=1798
68	http://www.leica-geosystems.com.cn/newsdetail.asp?l3=0&nid=469
69	http://www.baoshan.cn/4034/2005/10/25/707@277291.htm
70	Feasibility Study Report for Xiashilong Hydropower Station
71	http://www.heqing.gov.cn/DefaultStyle/DefaultStyle_NewPage.aspx?PageId=24495&TagControlID=24502&LibInfoID=25536
72	http://www.ynsph.com.cn/
73	Investment Strategy Report on Electric Power Industry 2005
74	http://www.gsstock.com/yfzx/041206dlbg.pdf

Reference No.	Document or Type of Information
75	http://www.topcj.com/html/2/KPGG/20070214/45241.shtml
76	http://www.788111.com/f10/600995/f10_newscontent/2/174050602171.html
77	http://www.bofcom.gov.cn/bofcom/43291183419070873 6/20070124/103037.html
78	The Approval for Houqiao Hydropower Station
79	http://www.ynpower.com.cn/information/510.svc
80	Annual Report of Wenshan Company 2006
81	http://www.hfzq.com.cn/start/Info_Content.aspx?fromTable=gsyw&guid={D6946660-046C-4081-AB55-F73C1240D0B8}
82	http://www.7c.gov.cn/color/DisplayPages/ContentDisplay_455.aspx?contentid=9180
83	http://www.ynws.gov.cn/docdetail_new.asp?id1=20050321081428
84	Feasibility Study Report for Xiashilong Hydropower Station
85	Economist Intelligence Unit (2003), “China Hand”
86	The FSR of Mengdianhe II Hydropower Project
87	Bulletin on confirming of the baseline emission factor for China Grid is promulgated by Office of National Coordination Committee on Climate Change, Aug. 9, 2007.
88	Approval of Supplementary Economic Evaluation, dated on Dec.28, 2005, Development and Reform Commission of Nujiang Lisu Autonomous Prefecture, file number: No.412 Nu Fa Ga Nei Yuan[2005].
89	The Operating Notice published by the Fugong Hongyuan Hydropower Development Co., Ltd.
90	Power System Reform Blue Print, published by State Council, February 10, 2002.
91	Annual Report of Wenshan Company 2006
92	Yearbook of China Water Resources 2006
93	Investment Strategy Report on Electric Power Industry 2005
94	FSR-Supplementary Economic Evaluation of Guquan, dated in Sep. 2005.
95	China LoA

Reference No.	Document or Type of Information
96	Germany LoA
97	MOC
98	CDM Development Agreement with Power Enterprises Association of Dehong Province, signed on April 11, 2005.
99	CDM Development Agreement with Beijing Tianqing Power International CDM Consulting, Co., Ltd., signed on July 10, 2006.
100	ERPA, Fugong Hongyuan Hydropower Development Co., Ltd. and RWE Power AG, signed on September 25, 2006.
101	The Circular for Hydropower Stations from local Grid Company, Yunnan Nujiang Grid Company, February 8, 2005.
102	Balance Sheet and Electricity Invoice (for the Guquan Project), May 2008.
103	Investment Estimation Report, November 2007, Yunnan Bank Real Estate Appraisal Co. Ltd.