



VALIDATION REPORT

YUNNAN HAOLONG INDUSTRY GROUP LUQUAN
HYDROPOWER DEVELOPMENT Co., LTD

LUQUAN COUNTY TIESUOQIAO HYDROPOWER
PROJECT

Report No: 8000412233–12/281

Date: 2012-10-04

TÜV NORD CERT GmbH
JI/CDM Certification Program
Langemarckstraße, 20
45141 Essen, Germany
Phone: +49-201-825-3335
Fax: +49-201-825-2139
www.tuev-nord.de
www.global-warming.de



Validation Report:	Report No.	Rev. No.	Date of 1st issue:	Date of this rev.
	8000412233-12/281	0	2012-10-04	2012-10-04
Project:	Title:	Initial PDD Version:	Final PDD Version	
	Luquan County Tiesuoqiao Hydropower Project	2012-05-21	2012-07-17	
Project Participant(s):	Non-Annex 1 country:	Annex 1 country:		
	China	-		
	PP from Non-Annex 1 country:	PP from Annex 1 country:		
	Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd	-		
Applied methodology/ies:	Title:	No.:	Scope / TA:	
	Consolidated baseline and monitoring methodology for grid-connected electricity generation from renewable sources	ACM0002 ver 13	1 / 1.2	
Validation team / Technical Review and Final Approval	Validation Team:	Technical review:	Final approval:	
	TL: Yan Tao TM: Yu Miao	B. Grünenwald	M. Saalman	
Expected Emission reductions: [t CO₂e]	Expected emission reductions over the first crediting period:		(Expected) starting date of the crediting period:	
	504,308		2013-01-01	
Confidential content:	<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
Key dates of validation:	Publication of PDD:	Draft Report issued:	On-site (from):	On-site (to):
	2012-05-29	2012-07-05	2012-06-20	2012-06-21
Summary of Validation Opinion:	<p>In detail the conclusions can be summarised as follows:</p> <p><input checked="" type="checkbox"/> The project is in line with all relevant host country criteria (China) and all relevant UNFCCC requirements for CDM. Project activity approval have been obtained from DNA of China vide the Letter of Approval (HCA) dated 2012-07-27.</p> <p><input checked="" type="checkbox"/> The project additionality is sufficiently justified in the PDD.</p> <p><input checked="" type="checkbox"/> The monitoring plan is transparent and adequate.</p> <p><input checked="" type="checkbox"/> The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 504,308 t CO₂e are most likely to be achieved within the (1st renewable) crediting period.</p> <p><input checked="" type="checkbox"/> The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.</p>			
Document information:	Filename:			No. of pages:
	2012-10-04 FVR Tiesuoqiao Hydro VAL_clean.docx			116

Abbreviations

BAU	Business as usual
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO₂	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CP	Certification Program
DNA	Designated National Authority
DVR	Draft Validation Report
EB	CDM Executive Board
EIA	Environmental Impact Assessment
FAR	Forward Action Request
GHG	Greenhouse gas(es)
MoU	Memorandum of understanding
IPCC	Intergovernmental Panel on Climate Change
PDD	Project Design Document
QC/QA	Quality control/Quality assurance
SCPG	Southern China Power Grid

Table of Contents	Page
1 OBJECTIVE / SCOPE	6
2 GHG PROJECT DESCRIPTION.....	7
2.1 Project Characteristics	7
2.2 Involved Parties and Project Participants	7
2.3 Project Location	7
2.4 Technical Project Description	8
3 METHODOLOGY AND VALIDATION SEQUENCE.....	9
3.1 Validation Steps	9
3.2 Contract review	9
3.3 Appointment of team members and technical reviewers	9
3.4 Consideration of Public Stakeholder Comments	10
3.5 Validation Protocol	11
3.6 Review of Documents	12
3.7 Site Visit and Follow-up Interviews	12
3.8 Project comparison	13
3.9 Resolution of Clarification and Corrective Action Requests	13
3.9.1 Definition	13
3.9.2 Draft Validation	13
3.9.3 Final Validation	13
3.10 Technical review	14
3.11 Final approval	14
4 VALIDATION FINDINGS	15
5 VALIDATION ASSESSMENT SUMMARY	24
5.1 General Description of the Project Activity	24
5.1.1 Technology to be employed	24
5.1.2 Small Scale Projects	24
5.2 Project Baseline	25
5.2.1 Application of the Methodology	25
5.2.2 Project Boundary	25
5.2.3 Baseline Identification	26
5.2.4 Algorithms and formulae used to determine emission reductions	26
5.3 Additionality Determination	29
5.3.1 Consideration of CDM in decision making (if project start before validation)	29
5.3.2 Alternatives	30
5.3.3 Investment analysis	30
5.4 Monitoring Plan	34



5.5	Crediting Period	36
5.6	Environmental Impacts	36
5.7	Comments by Local Stakeholders	36
5.8	Participation	36
5.8.1	Project Participants	36
5.8.2	LOA	37
5.8.3	MoC	37
5.9	PDD editorial Aspects	37
6	VALIDATION OPINION	38
7	REFERENCES	39
	ANNEX 1: VALIDATION PROTOCOL.....	46
	ANNEX 2: ASSESSMENT OF APPLICABILITY CRITERIA	94
	ANNEX 3: ASSESSMENT OF BASELINE IDENTIFICATION.....	95
	ANNEX 4: ASSESSMENT OF FINANCIAL PARAMETERS.....	96
	ANNEX 5: ASSESSMENT OF BARRIER ANALYSIS	114
	ANNEX 6: OUTCOME OF THE GSCP	115
	ANNEX 7: STATEMENTS OF COMPETENCE OF INVOLVED PERSONNEL	116

1 OBJECTIVE / SCOPE

The purpose of a validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- the requirements of Article 12 of the Kyoto Protocol;
- the CDM modalities and procedures as agreed in the Marrakech Accords under decision 3/CMP.1
- the annex to the decision;
- subsequent decisions made by COP/MOP & CDM Executive Board and
- other relevant rules, including the host country legislation and sustainability criteria

are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of certified emission reductions (CERs).

The validation scope is given as a thorough independent and objective assessment of the project design including especially: the correct application of the methodology, the project's baseline study, additionality justification, local stakeholder commenting process, environmental impacts and monitoring plan, which are included in the PDD and other relevant supporting documents, to ensure that the proposed CDM project activity meets all relevant and applicable CDM criteria.

The information included in the PDD and the supporting documents were reviewed against the requirements as set out by the UNFCCC. The validation team has, based on the requirements in the Validation and Verification Standard^{VVS/}, carried out a full assessment of all evidences to assess the compliance of the project with the key areas as outlined in section V.II. of the VVS (version 02.0, EB 65).

The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions.

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

2 GHG PROJECT DESCRIPTION

2.1 Project Characteristics

Essential data of the project is presented in the following Table 2-1.

Table 2-1: Project Characteristics

Item	Data		
Project title	Luquan County Tiesuoqiao Hydropower Project		
Project size	<input checked="" type="checkbox"/> Large Scale	<input type="checkbox"/> Small Scale	
Project Scope (according to UNFCCC sectoral scope numbers for CDM)	<input checked="" type="checkbox"/>	1	Energy Industries (renewable- /non-renewable sources)
	<input type="checkbox"/>	2	Energy distribution
	<input type="checkbox"/>	3	Energy demand
	<input type="checkbox"/>	4	Manufacturing industries
	<input type="checkbox"/>	5	Chemical industry
	<input type="checkbox"/>	6	Construction
	<input type="checkbox"/>	7	Transport
	<input type="checkbox"/>	8	Mining/Mineral production
	<input type="checkbox"/>	9	Metal production
	<input type="checkbox"/>	10	Fugitive emissions from fuels (solid, oil and gas)
	<input type="checkbox"/>	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride
	<input type="checkbox"/>	12	Solvents use
	<input type="checkbox"/>	13	Waste handling and disposal
	<input type="checkbox"/>	14	Afforestation and Reforestation
	<input type="checkbox"/>	15	Agriculture
Applied Methodology	ACM0002 ver 13		
Technical Area(s)	1.2 Renewable Energies		
Crediting period	<input checked="" type="checkbox"/> Renewable Crediting Period (7 y)	<input type="checkbox"/> Fixed Crediting Period (10 y)	
Start of crediting period	2013-01-01		

2.2 Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-2).

Table 2-2: Project Parties and project participants

Characteristic	Party	Project Participant
Non-Annex 1 Country	China	Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd

2.3 Project Location

The details of the project location are given in Table 2-3:

Table 2-3: Project Location

No.	Project Location
Host Country	China
Region:	Yunnan Province
Project location address:	Tiesuoqiao, Luquan County, Kunming City
Latitude:	25°36'25"N
Longitude:	102°39'05"E

2.4 Technical Project Description

The project is a run-of-river hydropower plant utilizing the natural flow of the local river to generate electric power. It mainly consists of water-intake structure, diversion system, power house and on-site booster. The total installed capacity is 24 MW and the electricity generated will be delivered to South China Power Grid (SCPG).

The technical key data are provided in Table 2-4 below

Table 2-4: Technical data of the project activity

Parameter	Unit	Value
Turbine		
Type	-	HLA551-LJ-265
Quantity	-	2
Rated head	m	30
Rated flow	m ³ /s	44.97
Rated rotation speed	rpm	166.7
Rated capacity	MW	12.5
Lifetime	Year	20
Generator		
Type	-	SF12-36/5500
Rated voltage	kV	6.3
Power factor	-	0.80
Rated rotation speed	rpm	166.7
Rated power	MW	12
Lifetime	Year	20

3 METHODOLOGY AND VALIDATION SEQUENCE

3.1 Validation Steps

The validation of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the project design document (PDD)
- Desk review of the PDD and supporting documents
- Validation planning
- On-Site assessment
- Background investigation and follow-up interviews with personnel of the project developer and its contractors
- Draft validation reporting
- Resolution of corrective actions (if any)
- Final validation reporting
- Technical review
- Final approval of the validation

3.2 Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the validation can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3 Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities, a validation team, consisting of one team leader and 1 additional team member, as well as the Technical Review personnel were appointed.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the Table 3-2 below.

Table 3-2: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence ³⁾	Technical competence ⁴⁾	Host country Competence	On-site visit
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Yan, Tao	TN China	TL	LA	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Yu, Miao	TN China	TM ^{A)}	LA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Grünenwald, Büsrän	TN Cert	TR ^{B)}	LA	<input checked="" type="checkbox"/>	1.2.1	<input type="checkbox"/>	-
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Saalmann, Martin	TN Cert	FA ^{B)}	SA	<input checked="" type="checkbox"/>	1.2	<input type="checkbox"/>	-

¹⁾ TL: Team Leader; TM: Team Member; TR: Technical review; OT: Observer-Team; OR: Observer-TR; FA: Final approval

²⁾ GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert

³⁾ GHG auditor status (at least Assessor)

⁴⁾ As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, ...)

A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE

B) No team member

All team members contributed to the review of documents, the assessment of the project activity and to the preparation of this report under the leadership of the team leader.

Technical Experts contributed to the assessment of special aspects of the project activity, e.g. technical or host country aspects.

In order to qualify further personnel the project team was accompanied by observers and/or trainees as indicated in the table above. They are usually not considered as team members.

Statements of competence for the above mentioned team members are enclosed in annex 7 of this report.

3.4 Consideration of Public Stakeholder Comments

Acc. to the modalities and procedures the draft PDD, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the validation activity commenced. Stakeholders have been invited to comment on the PDD within the 30 days public commenting period.

In case comments are received, they are taken into account during the validation process. The comments and the discussion of the same are documented in annex 6 of this report.

3.5 Validation Protocol

In order to ensure consideration of all relevant assessment criteria, a validation protocol is used. The protocol shows, in a transparent manner, criteria and requirements, means of validation and the results from pre-validating the identified criteria. The validation protocol reflects the generic CDM requirements each CDM project has to meet as well as project specific issues as applicable. The validation protocol serves the following purposes:

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

The validation protocol is described in Figure 1.

Validation Protocol Table A-1: Requirement checklist				
Checklist Item	Validation Team Comment	Reference	Draft Conclusion	Final Conclusion
<i>The checklist items in Table A-1 are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then further subdivided as per the requirements of the topic and the individual project activity.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the validation team and how the assessment was carried out. The reporting requirements of the VVS shall be covered in this section.</i>	<i>Gives reference to the information source on which the assessment is based on</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft validation stage.</i>	<i>In case a corrective action or a clarification the final assessment at the final validation stage is given.</i>

Figure 1: Validation protocol table

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

3.6 Review of Documents

The published PDD and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

3.7 Site Visit and Follow-up Interviews

The validation team has carried out a site visit in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for CDM.

During validation the validation team has performed interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in Table 3-3.

Table 3-3: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives /IM01/	<ul style="list-style-type: none"> - Chronological description of the project activity with documents of key steps of the implementation. - Current status of plant design - Technical details of the project realization, project feasibility, designing, operational life time, monitoring of the project - Host Government Approval - Approval procedures and status - Monitoring and measurement equipment and system. - Financial aspects - Crediting period - Project activity starting date - CER allocation / ownership - Baseline study assumptions - Additionality - Sustainable development issues - Monitoring - Analysis of local stakeholder consultation - Roles & responsibilities of the project participants w.r.t. project management, monitoring and reporting - National Legislation - Editorial issues of the PDD
Project consultant /IM02/	
Local Stakeholders /IM03/	

A comprehensive list of all interviewed persons is part of section 7 'References'.

3.8 Project comparison

The validation team has compared the proposed CDM project activity with similar projects or technology that have similar or comparable characteristics and with similar projects in the host country in order to achieve additional information esp. regarding:

- Project technology
- Additionality issues
- Reasons for reviews, requests for reviews and rejections within the CDM registration process.

3.9 Resolution of Clarification and Corrective Action Requests

3.9.1 Definition

A **Corrective Action Request (CAR)** will be established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

3.9.2 Draft Validation

After reviewing all relevant documents and taken all other relevant information into account, the validation team issues all findings in the course of a draft validation report and hands this report over to the project proponent in order to respond on the issues raised and to revise the project documentation accordingly.

3.9.3 Final Validation

The final validation starts after issuance of the proposed corrective action (CA) of the CARs, CLs and FARs by the project proponent. The project proponent has to reply on those and the requests are "closed out" by the validation team in case the

response is assessed as sufficient. In case of raised FARs the project proponent has to respond on this, identifying the necessary actions to ensure that the topics raised in this finding are likely to be resolved at the latest during the first verification. The validation team has to assess whether the proposed action is adequate or not.

In case the findings from CARs and CLs cannot be resolved by the project proponent or the proposed action related to the FARs raised cannot be assessed as adequate, no positive validation opinion can be issued by the validation team.

The CAR(s) / CL(s) / FAR(s) are documented in chapter 4.

3.10 Technical review

Before submission of the final validation report a technical review of the whole validation procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the validation team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.11 Final approval

After successful technical review of the final report an overall (esp. procedural) assessment of the complete validation will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

Only after this step the request for registration can be started (in case of a positive validation opinion).

4 VALIDATION FINDINGS

In the following table the findings from the desk review of the published PDD, visits, interviews and supporting documents are summarised:

Table 4-1: Summary of CARs, CLs and FARs issued

Validation topic ¹⁾	No. of CAR	No. of CL	No. of FAR
Description of project activity (A): <ul style="list-style-type: none"> - Project specification - Technical project description - Project Participants Technologies and/or measures 	1	1	0
Application of selected approved baseline and monitoring methodology (B) <ul style="list-style-type: none"> - Application of the Methodology - Project Boundary - Baseline identification - Calculation of GHG emission reductions <ul style="list-style-type: none"> Project emissions Baseline emissions Leakage - Additionality determination - Monitoring Methodology - Monitoring Plan - Project management planning 	3	2	0
Duration and Crediting Period (C)	0	1	0
Environmental impacts (D)	0	0	0
Local Stakeholder Consultation (E)	0	0	0
Approval, Authorization and other aspects (F): <ul style="list-style-type: none"> - Letter of Approval - Contribution to sustainable development - MoC - PDD editorial aspects 	0	0	0
SUM	4	4	0

¹⁾ The letters in brackets refer to the validation protocol



The following tables include all raised CARs, CLs and FARs. For an in depth evaluation of all validation items it should be referred to the validation protocols (see Annex 1).

The findings of validation process are summarized in the tables below.

Finding	A1		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During the on-site validation, it was found out that the LoA from host country China (HCA) is pending and that the MOC is missing.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The LoA of China and MoC have been provided to the DOE.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The HCA from China's DNA of No. 4367 is provided by the PP^{/HCA/}. It is assessed as authentic by consulting the Chinese DNA's website^{/dna/}.</p> <p>Checklist F.1.1.: The PP provided the HCA from China's DNA. The project title is clearly referenced in the document. TÜV NORD referred to the China's DNA website to check if the project has received the HCA and to confirm the authenticity. The project activity is listed and the authenticity is confirmed.</p> <p>Checklist F.1.2.: The HCA was issued by the National Development and Reform Commission. By means of checking the UNFCCC website, it could be confirmed that the department is listed as DNA^{/unfccc/}.</p> <p>Checklist F.1.3.: The HCA confirms that China approved the Kyoto Protocol to the United Nations Framework Convention on Climate Change on 2002-08-30 and is a Party to the Kyoto Protocol.</p> <p>Checklist F.1.4.: In the HCA, it is clearly indicated that Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd is authorized as China's participant to voluntarily participate in and carry out the project activity.</p> <p>Checklist F.1.5. and A.2.1.: The HCA confirms that the project activity assists China in achieving sustainable development.</p> <p>Checklist F.1.6.: The project title in the HCA is "Luquan County Tiesuoqiao Hydropower Project". Other references to the documentation are not provided. By means of comparing the project title of the project activity listed in the final PDD and in the HCA, TÜV NORD could confirm the consistency.</p> <p>Checklist F.1.7.: TÜV NORD could not observe that the approval is not unconditional. The HCA has been carefully checked to confirm this.</p> <p>Checklist F.1.8.: By checking listed in section A.3. and in Annex I of the final PDD, it is confirmed that the information of project participants is internally consistent to each other and furthermore</p>		



Finding	A1
	<p>identical with the PP indicated in the HCA.</p> <p>Checklist F.1.9.: Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd is defined as PP from China. The HCA has been checked by the validation team to confirm that the same entity is approved by the party involved. No deviations have been observed. The final PDD and HCA are consistent.</p> <p>Checklist F.1.10.: The HCA unambiguously identified Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd as PP from China.</p> <p>Checklist F.2.1.: a valid Modalities of Communication (MoC) has been provided to the validation team from a project participant with whom the DOE has a contractual relationship.</p> <p>Checklist F.2.2.: the MoC has been signed by a duly authorized person on behalf of the respective project participant.</p> <p>CAR A1 is thus closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Finding	A2
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	In PDD version 01 Section A, the project title in PDD is slightly not consistent with the one as per UNFCCC website.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The project title as per UNFCCC website is clearly a typo, Luquan is the place name where the Project located at. And the project title in the approval of FSR and approval of EIA is Luquan County Tiesuoqiao Hydropower Project, which is consistent with the one in PDD version 01 (PDD for GSP).
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The PDD version 02 has been checked. By means of the on-site visit, interview and documents check (including FSR, EIA, approval of FSR, approval of EIA), it is confirmed that Luquan is the county name where the project is located. The project name is correct.</p> <p>The CL A2 is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Finding	A2
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR



Finding	A2
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	In PDD version 01 Section A, the project title in PDD is slightly not consistent with the one as per UNFCCC website.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The project title as per UNFCCC website is clearly a typo, Luquan is the place name where the Project located at. And the project title in the approval of FSR and approval of EIA is Luquan County Tiesuoqiao Hydropower Project, which is consistent with the one in PDD version 01 (PDD for GSP).
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The PDD version 02 has been checked. By means of the on-site visit, interview and documents check (including FSR, EIA, approval of FSR, approval of EIA), it is confirmed that Luquan is the county name where the project is located. The project name is correct. The CL A2 is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Finding	B1
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	In PDD version 01, Section B.2, according to ACM0002, the applicability criteria for hydro power plants requires the project to justify the three conditions listed in the methodology, which is missing in PDD.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The project activity results in new reservoirs and the power density of the proposed project is 664.67 W/m ² , as per definitions given in the Project Emission section, which is greater than 4 W/m ² ; Relevant information has been added to Section B.2 of the revised PDD.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The PDD version 02 has been checked. According to ACM0002 version 13.0.0, the project applies the condition that "The project activity results in new single reservoir and the power density is greater than 4 W/m ² ". The project fulfills the application criteria of the methodology. The CL B1 is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed



Finding	B2		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	In PDD Version 01 section B.5, the demonstration of continuous and real actions taken to secure the CDM status is not sufficient.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The demonstration of continuous and real actions taken to secure the CDM status has been revised and more actions taken by the PO or consultant to secure the CDM status have been added to the timeline in section B.5 of the revised PDD.		

Finding	B2																		
<p>DOE Assessment #1</p> <p><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<p>The PDD version 02 has been checked.</p> <p>The project owner has been aware at an early stage of the incentive of CDM which may help to improve the barriers the proposed project is facing. Therefore, CDM consideration was involved in the planning stage of the proposed project and this fact is included in the FSR of the proposed project on March 2007, which will help to improve the financial difficulties the proposed project faces. The project owner decided to proceed with the proposed project as a CDM project on 12 Dec.2007. The following timeline shows real actions taken to secure the CDM status:</p> <table border="1"> <thead> <tr> <th>Time</th><th>Milestones</th></tr> </thead> <tbody> <tr> <td>2008-05-24</td><td>CDM consultant contract signed between the Project owner and Huiliu Science and Technology co., Ltd</td></tr> <tr> <td>2009-02-12</td><td>MoU from Project owner to Huiliu Science and Technology co., Ltd for pushing the CDM development</td></tr> <tr> <td>2009-04-10</td><td>Term sheet for CER purchase signed between Project owner and Renaissance Carbon Investment Ltd.</td></tr> <tr> <td>2010-04-10</td><td>Term sheet for CER purchase terminated</td></tr> <tr> <td>2010-09-04</td><td>CDM consultant contract terminated between the Project owner and Huiliu Science and Technology co., Ltd</td></tr> <tr> <td>2011-07-25</td><td>CDM consultant contract signed between the Project owner and Hangzhou Yuneng Science and Technology co., Ltd</td></tr> <tr> <td>2012-01-30</td><td>Board meeting on developing the project as a Unilateral project</td></tr> <tr> <td>2012-05-29</td><td>PDD published on UNFCCC website</td></tr> </tbody> </table> <p>All of the key events are included in the updated PDD, CDM consideration documents^{/CMD/} have been checked by the validation team. The CER buyer “Renaissance Carbon Investment Ltd” and former consultant “Huiliu Science and Technology co., Ltd” have been interviewed to confirm the cooperation history^{/IM04/}. The project owner has been interviewed to confirm the project’s CDM implementation timeline. Continuous and real actions were taken in order to secure the CDM status. The gap of documented evidence is less than 2 years. CDM involvement in the decision can be assessed as serious. The PDD was updated accordingly.</p> <p>The CAR B2 is closed.</p>	Time	Milestones	2008-05-24	CDM consultant contract signed between the Project owner and Huiliu Science and Technology co., Ltd	2009-02-12	MoU from Project owner to Huiliu Science and Technology co., Ltd for pushing the CDM development	2009-04-10	Term sheet for CER purchase signed between Project owner and Renaissance Carbon Investment Ltd.	2010-04-10	Term sheet for CER purchase terminated	2010-09-04	CDM consultant contract terminated between the Project owner and Huiliu Science and Technology co., Ltd	2011-07-25	CDM consultant contract signed between the Project owner and Hangzhou Yuneng Science and Technology co., Ltd	2012-01-30	Board meeting on developing the project as a Unilateral project	2012-05-29	PDD published on UNFCCC website
Time	Milestones																		
2008-05-24	CDM consultant contract signed between the Project owner and Huiliu Science and Technology co., Ltd																		
2009-02-12	MoU from Project owner to Huiliu Science and Technology co., Ltd for pushing the CDM development																		
2009-04-10	Term sheet for CER purchase signed between Project owner and Renaissance Carbon Investment Ltd.																		
2010-04-10	Term sheet for CER purchase terminated																		
2010-09-04	CDM consultant contract terminated between the Project owner and Huiliu Science and Technology co., Ltd																		
2011-07-25	CDM consultant contract signed between the Project owner and Hangzhou Yuneng Science and Technology co., Ltd																		
2012-01-30	Board meeting on developing the project as a Unilateral project																		
2012-05-29	PDD published on UNFCCC website																		
<p>Conclusion</p> <p><i>Tick the appropriate checkbox</i></p>	<p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input type="checkbox"/> Additional action should be taken (finding remains open)</p> <p><input checked="" type="checkbox"/> The finding is closed</p>																		



Finding	B3		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	In PDD Version 01 Section B.5, threshold analysis of fixed assets investment is not sufficient. In addition, it is not clear, if the benchmark chosen is before or after tax.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The threshold analysis of fixed assets investment is revised as:</p> <p>If the Fixed asset investment decreases by 22.00%, the Project IRR would be close to the benchmark. However, according to the GDP and Social Development Statistical Bulletin published by National Bureau of Statistics of China from 2005 to 2010, the price of static investment, industrial products and raw materials keep continuous growth. Furthermore, although the construction of the Project has not been finished, according to the contracts which have been signed by now, the total already contracted investment was 17,812.5 ten thousand CNY as yet. The estimated fixed asset investment in the FSR were 17,509 ten thousand Yuan. It means that the already contracted investment was higher than that estimated in the FSR by 1.70%. So the fixed asset investment used in the financial analysis is reasonable. Thus, it's unlikely for the total investment in fixed assets decreased by 22.00%.</p> <p>The after-tax benchmark IRR was chosen for the Project. This information has been added to relevant part of PDD.</p>		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The PDD version 02 has been checked.</p> <p>A decrease in fixed assets investment of 22% is unlikely to occur due to the continuous increase in material and labor costs etc. in the host country of the proposed project. According to the National Bureau of Statistics of China, the procurement price index for material, fuel and power was increased by 8.3%, 6.0%, 4.4% and 10.5% nationwide, during 2005, 2006, 2007 and 2008 respectively^{/stat/}.</p> <p>The FSR was compiled in March 2007^{/FSR/} so that the material, fuel and power cost before 2007 was adopted. The value of signed equipment purchasing^{/EPA/} and construction contracts^{/CC/} amounts to 178.13 million CNY which are available up to 2012-07. It is 1.7% higher of the estimated fixed assets investment. Therefore, the total static investment will not decrease by 22% percent. The contracts have been checked by the validation team.</p> <p>The CAR B3 is closed.</p>		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

Finding	B4		
Classification	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	In PDD version 01 Section B.5 Step 4, the justification, why Yunnan		

Finding	B4
<i>biguous style; address the context (e.g. section)</i>	Province has been identified as boundary for the common practice analysis is insufficient.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The justification is revised as:</p> <p>According to the Tool for the Demonstration and Assessment of Additionally, projects are considered “similar” in case they are located in the “same county/region”, are of “similar scale”, and “take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc”.</p> <p>Yunnan Province with an area of 39.4 ten thousand km², is comparatively and considerably larger than many countries. According to the requirements of common practice, the projects with similar conditions, such as investment conditions and natural conditions (including geographical conditions, climate conditions, development conditions and so on), are necessary to be analyzed. Projects located in different provinces of SCPG do not have the similar investment conditions and natural conditions:</p> <ul style="list-style-type: none"> - Guangdong Province has much lower water resources than Yunnan province and Guizhou Province. - Yunnan Province and Guizhou Province both are rich in water resources, with very abundant water resources. - But the economic development of Yunnan province and Guizhou province is different. In 2008, per capital GDP of Yunnan province and Guizhou province is 12,669 Yuan and 8,450 Yuan respectively. The per capital GDP of Yunnan province is higher than Guizhou by 50%. So the investment condition of Yunnan and Guizhou differs greatly. - In addition, Guangxi Zhuang Autonomous Region is an autonomous region, which has more different conditions from normal provinces like Yunnan, Guangdong and Guizhou provinces. The Autonomous Region of China has special right. The autonomous region can publish autonomous rule, policy and regulation in politics, economy and culture. If the decision, orders, regulations and direction cannot accord with the local actual situation of autonomous region, the autonomous region can choose alternative method or cease it. <p>Therefore, the PDD selects geographical area, i.e. Yunnan Province, as a common practice region.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The PDD version 02 has been checked. The justification is assessed as clear and sufficient to present the material difference between the selected Yunnan Province and other provinces like Guangdong, Guangxi and Guizhou in the same regional grid (SCPG).</p> <p>The CL B4 is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed



Finding	B5		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	PDD version 01, Section B.7., according to ACM0002 version 13, the parameter $EG_{\text{facility},y}$ which shall be monitored is missing.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The parameter $EG_{\text{facility},y}$ has been added to Section B.7. of the revised PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The PDD version 02 has been checked. The parameter $EG_{\text{facility},y}$ has been monitored according to ACM0002 version 13.0.0. The CAR B5 is closed.		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

Finding	C1		
Classification	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	PDD version 01, Section C.1., the starting date of crediting period is not reasonable.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The starting date of crediting period has been updated as 2013-01-01. Please refer to the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The PDD version 02 has been checked. The updated starting date of crediting period is now reasonable and in line with the requirement. The CL C1 is closed.		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

5 VALIDATION ASSESSMENT SUMMARY

5.1 General Description of the Project Activity

5.1.1 Technology to be employed

The project will utilize the local hydro energy sources to generate electricity. The total installed capacity is 24 MW (2*12 MW)^{/EPA/TS/} and the electricity generated will be delivered to the SCPG^{/PDA/}.

The overall project design and technical description of the project activity has been cross-checked against the equipment technical specification^{/TS/}. In addition, a physical site inspection has been conducted by the validation team to confirm that the description in the PDD reflects the proposed CDM project activity. Interviews, background research and document review are used to validate the accuracy and completeness of the information provided in the PDD.

A clear and sufficient description of the project activity is provided in the PDD, covering all relevant aspects. The precise nature of the project activity and the technical aspects of its implementation are presented in an understandable manner.

The project does not involve the alteration of the existing installation or process. The technology employed is environmentally safe and sound. There is no technology transfer.

The operational lifetime of the project activity is expected to be 20 years as stated in section C.1.2. of the PDD. This is consistent with the FSR^{/FSR/} and the financial analysis. And it is also consistent with the lifetime of the hydro turbine-generators provided by the equipment manufacturer^{/TS/}.

As described in section A.4.1. of the PDD, the project activity is located on Pudu River in Tiesuoqiao, Luquan County, Kunming City, Yunnan Province Yunnan Province, P.R. China. The location described in the PDD accurately reflects the location of the project activity. The information is consistent with the FSR^{/FSR/} and was further confirmed by the site visit.

5.1.2 Small Scale Projects

N/A

5.2 Project Baseline

5.2.1 Application of the Methodology

Consolidated baseline methodology for grid-connected electricity generation from renewable sources “ACM0002 ver. 13.0.0” as justified below:

- The project is a grid-connected^{/PDA/} renewable electricity generation activity^{/FSR/} that install a new hydro power plant^{/EPA//IM01//IM03//AFSR//AEIA/} at the project site where no renewable power plant was operated prior to the implementation of the project activity/AFSR//AEIA//FSR//IM03/.
- The power density of the power plant is 664.67 W/m², greater than 4 W/m².

According to the applied methodology, the project applies the valid and approved versions of “Tool to calculate the emission factor for an electricity system” (Version 02.2.1) and “Tool for the demonstration and assessment of additionality” (Version 06.0.0).

The methodology and tools are available at:

<http://cdm.unfccc.int/methodologies/PAmethodologies/approved>

The project meets all the applicability conditions and is in line with all the requirements and stipulations mentioned in applied methodologies.

It is not observed that the implementation of the project activity leads to GHG emissions within the project boundary which are expected to contribute more than 1% of the overall expected average annual emission reductions^{/IM01//IM03//EPA//TS//FSR/}, which are not addressed by the methodology.

5.2.2 Project Boundary

The project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to^{/ACM2/}, namely:

- The project power plant, and
- All power plants connected physically to SCPG which the project activity is connected to.

The project boundary is correctly determined in section B.3. of the PDD by means of document review^{/FSR//AFSR//EPA//PDA/} and observation of the physical site visit. The source of GHG is CO₂ as claimed in the PDD and assessed to be reasonable and appropriate.

5.2.3 Baseline Identification

For the installation of a new grid-connected renewable power plant, the baseline scenario is the electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

Therefore, the baseline scenario is determined as the electricity generated by the project activity which will replace the equivalent electricity that would be otherwise supplied by the SCPG. The baseline scenario is selected according to the prescribed one in the applied methodology ACM0002 ver. 13.0.0. It is deemed appropriate.

5.2.4 Algorithms and formulae used to determine emission reductions

Ex-ante emission reductions calculation

The ex-ante ER_y of the project activity during the crediting period is the difference among the baseline emission (BE_y), project emission (PE_y) and leakage (LE_y). The GHG emission reduction is calculated as per ACM0002 ver. 13.0.0 with the following equations:

$$ER_y = BE_y - PE_y - LE_y$$

In total, the project activity reduces emissions of 504,308 tCO₂e over the first renewable crediting period (7 years).

Baseline emissions

As prescribed in ACM0002 ver. 13.0.0, the project activity is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the project activity, the baseline emissions are to be calculated as follows:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y} = EG_{facility,y} * EF_{grid,CM,y}$$

Where

BE_y	Baseline emissions in year y (tCO ₂);
$EG_{PJ,y}$	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
$EF_{grid,CM,y}$	Combined margin CO ₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO ₂ /MWh)
$EG_{facility,y}$	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

As per the “Tool to calculate the emission factor for an electricity system” (Version 02.2.1), the baseline emission factor $EF_{grid,CM,y}$ is determined ex-ante and estimated

as a combined margin (CM) consisting of the weighted average of operating margin (EF_{OM}) and build margin (EF_{BM}) factors.

The PDD was published on 2012-05-29 and the calculation of the grid emission factor is based on the latest data available at the time of starting the validation. The calculation method of OM and BM is derived from the methodology tool. The most recent three years of data at the time of PDD submission (2007-2009) are used in the calculation of OM and BM based on China Energy Statistical Yearbook 2007-2010^{/CESY/} and China Electric Power Yearbook 2007-2010^{/CEPY/}, which are all publicly available at the time of starting the validation.

The DNA of China has published a delineation of the project electricity system. Southern China Power Grid (SCPG) which is identified as the project electricity system as the project is located in Yunnan Province and the electricity generated will be delivered to Yunnan Grid. It is also confirmed that SCPG imports electricity from the Central China Power Grid (CCPG). Thus CCPG is considered as the connected electricity system for further calculation.

Only grid power plants are included in the emission factor calculation of the SCPG which is in line with Option I of Step 2 of the applied "Tool to calculate the emission factor for an electricity system".

The calculation method of the $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ is derived from the guidance of OM and BM calculation issued by the Chinese DNA. National Development and Reform Committee of the People's Republic of China has calculated OM and BM for each sub-grid and renews the results every year. The latest data prior to PDD-GSP published on 2011-10-20 were used for the OM and BM calculation (<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2720.pdf>). Finally, the emission factors are weighted 50/50 in accordance to the stipulations provided in the methodology for hydro projects.

$$EF_{grid,OM,y} = 0.9489 \text{ tCO}_2\text{e/MWh}, EF_{grid,BM,y} = 0.3157 \text{ tCO}_2\text{e/MWh}$$

$$\begin{aligned} \text{Thus, } EF_{grid,CM,y} &= 0.5 \times EF_{grid,OM,y} + 0.5 \times EF_{grid,BM,y} \\ &= 0.6323 \text{ tCO}_2\text{e/MWh} \end{aligned}$$

The grid emission factor will be fixed in the first crediting period.

BE_y is calculated by multiplying the electricity baseline emission factor or grid emission factor ($EF_{grid,CM,y}$) and the net electricity exported to the SCPG ($EG_{facility,y}$). The annual net electricity exported to SCPG from the project is estimated to be 113,940 MWh as defined in the FSR.

$$\begin{aligned} \text{So, } BE_y &= EF_{grid,CM,y} \times EG_{facility,y} \\ &= 0.6323 \text{ tCO}_2\text{e/MWh} \times 113,940 \text{ MWh} \\ &= 72,044 \text{ tCO}_2\text{e/yr} \end{aligned}$$

Project emission

According to ACM0002 ver. 13.0.0, the project emission is not counted as the power density is greater than 10 W/m². The calculation of power density in the PDD is confirmed as correct. The installed capacity and the area of the reservoir would be monitored.

Leakage

The leakage is not considered according to the applied methodology^{/ACM2/}.

Summary

As per the VVS, based on the information reviewed and calculation reproduced by the validation team, TÜV NORD confirms the following:

- (a) All assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used by project participants as the basis for assumptions and the sources of data are correctly quoted and interpreted in the PDD;
- (c) All values used in the PDD are considered reasonable in the context of the proposed CDM project activity;
- (d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

By reviewing the data and parameters used in the equations, in accordance with ACM0002 ver. 13.0.0 and the referenced tools, TÜV NORD confirmed that all sources and assumptions of the data and parameters that will not be monitored, and will remain fixed throughout the crediting period, are appropriate and calculations are correct, applicable to the proposed CDM project activity, and will result in a conservative estimation of the emission reductions.

As for the data and parameters that will be monitored, TÜV NORD confirmed that the estimates provided in the PDD for these data and parameters are reasonable including the value of data and references used.

5.3 Additionality Determination

5.3.1 Consideration of CDM in decision making (if project start before validation)

The start date of the project activity is 2008-07-10^{/CC/} when the Civil Construction Contract was signed. It is the earliest date between project implementation, construction and real action which is in compliance with the Glossary of CDM Terms^{/GCT/}. All documents available during the validation (contracts)^{/CC//EPA/} have been checked and verified by TÜV NORD.

The start date and the timeline of the project implementation were described in section B.5. of the PDD. The dates were confirmed during the on-site interview with the project owner^{/IM01/} and by means of document check.

The start date of project activity is determined as 2008-07-10. As it is before 2008-08-02, it is defined as an existing project according to the "Guidelines on the demonstration and assessment of prior consideration of the CDM"^{/GPC/}.

The start date is also prior to the date of publication of the PDD for global stakeholder consultation on 2010-05-29. So the CDM consideration is demonstrated as in the following:

- (a) Prior to the project start date 2008-07-10, the benefits of the CDM have become a decisive factor to proceed with the project.
 - The project owner held a board meeting on 2007-12-12^{/CDM,1/} to discuss the project development with CDM support as it is suggested in the FSR.
 - The CDM development consultancy contract was signed between the project proponent and the consultant on 2008-05-24^{/ECDM,2/}.
- (b) Continuing and real actions were taken to secure CDM status of the project in parallel with its implementation.
 - 2009-02-12 MoU from Project owner to Huiliu Science and Technology co., Ltd for pushing the CDM development ^{/ECDM,3/}
 - 2009-04-10 Term sheet for CER purchase signed between Project owner and Renaissance Carbon Investment Ltd. ^{/ECDM,4/}
 - 2010-04-10 Term sheet for CER purchase terminated ^{/ECDM,5/}
 - 2010-09-04 CDM consultant contract terminated between the Project owner and Huiliu Science and Technology co., Ltd ^{/ECDM,6/}

- 2011-07-25 CDM consultant contract signed between the Project owner and Hangzhou Yuneng Science and Technology co., Ltd ^{/ECDM,7/}
- 2012-01-30 Board meeting on developing the project as a Unilateral project ^{/ECDM,8/}
- 2012-05-29 PDD published on UNFCCC website ^{/unfccc/}

All the evidence mentioned above are checked by the validation team and the authenticity is confirmed. And the gap between the documented evidence is less than 2 years.

So it is deemed that the CDM was seriously considered in the decision to implement the project activity and continuing and real actions were taken to secure CDM status for the project activity according to the guideline ^{/GPC/}.

5.3.2 Alternatives

According to the additionality tool and ACM0002, the alternatives shall include:

Alternative 1) The proposed project activity undertaken without being registered as a CDM project activity.

Alternative 2) Equivalent annual electricity supplied by SCPG.

The alternatives defined are in line with the requirement.

5.3.3 Investment analysis

Application of methodology / methodological tools

The additionality was demonstrated according to the “Tool for the demonstration and assessment of additionality” (version 06.0.0) ^{/TA/}. The tool was used by the PP to assess the additionality of the project activity. The investment analysis prepared by the PP was evaluated by the validation team including the spreadsheet with the financial analysis and the evidence related to the input values used in the financial analysis. The analysis was also assessed against the “Guidelines on the assessment of investment analysis” ^{/GAIA/} using local knowledge and sectoral and financial expertise.

Table 5-1 Additionality assessment

Step ¹⁾	Argument by PP	Assessment of the validation team	
1a	The following alternatives were identified as per Additionality tool: Alternative 1) The proposed project activity undertaken	According to the additionality tool, the alternatives shall include: Alternative 1) The proposed project activity undertaken without being registered as a CDM project	<input checked="" type="checkbox"/> step passed <input type="checkbox"/> step not passed <input type="checkbox"/> not applicable

Step ¹⁾	Argument by PP	Assessment of the validation team	
	without being registered as a CDM project activity. Alternative 2) Equivalent annual electricity supplied by SCPG	activity. Alternative 2) Continuation of the current situation that means that electricity needed will be imported from the SCPG. The alternatives defined are in line with the requirement of additionality tool.	
1b	The alternative 1, 2 mentioned above are in compliance with the applicable legal and regulatory requirements.	The validation team checked the alternative 1 & 2 are consistent with current laws and regulations.	
2a	Option III: Benchmark analysis is selected for the investment analysis. According to the Additionality Tool three options are possible to apply. The simple cost analysis (Option I) is not applicable because this project will produce financial/economic benefits other than CDM related income, through sale of generated electricity to the SCPG. In this case the investment comparison analysis (Option II) is not applicable because the baseline scenario isn't a specific investment project.	In accordance with the Additionality Tool, the option III benchmark analysis is selected and the options I and II were not applied. Compared to other hydro power projects already registered under CDM the applied approach option III is usually chosen. The exclusion of option I and II is reasonable and hence assessed as OK.	<input checked="" type="checkbox"/> step passed <input type="checkbox"/> step not passed <input type="checkbox"/> not applicable (step 2 or 3 has to be passed)
2b	The financial indicator "Internal Rate of Return (IRR)" after tax of total investment for Chinese power industry is 10% as defined in the "Economic Evaluation Code for Small Hydropower Projects" ^{SL16-95/} . It has been identified as a financial indicator for benchmark analysis.	The SL16-95 ^{SL16-95/} is valid since 1995 and is widely used in China for the financial evaluation of grid connected power generation project. The choice of benchmark as 10% for newly constructed grid connected hydro power plant is assessed to be appropriate, since it is in compliance with national regulation and has been applied for many registered CDM hydro projects in the past.	
2c	The project IRR post-tax (without CDM revenue) is 7.24% which is lower than the identified benchmark of 10%.	PP has calculated IRR in the spreadsheet for the project activity on a post-tax basis and compared the same with the benchmark of 10%. PP has demonstrated that the project IRR is lower than the	

Step ¹⁾	Argument by PP	Assessment of the validation team	
		<p>benchmark and hence the project is not financially attractive.</p> <p>The IRR calculation was reproduced by the validation team.</p> <p>The parameters used for the IRR calculation were derived from the FSR, which was approved by the local government^{/AFSR/}. The assumptions stated in the report are assessed to be reasonable.</p> <p>Each parameter is assessed individually by the validators as per VVS, v. 2.0, para. 120, 121.</p> <p>The assessment is strictly following the latest Guidelines on the Assessment of Investment Analysis</p>	
2d	<p>The sensitivity analysis was demonstrated through threshold analysis by varying the above four parameters to make the IRR meet benchmark 10%.</p> <p>Based on checking the sensitivity analysis, it can be confirmed that the financial unattractiveness of the project is robust.</p>	<p>A sensitivity analysis has been carried out to demonstrate the impact on the IRR if variations to the key input values of the financial analysis occur, in accordance with the "Guidelines on the assessment of investment analysis"^{/GAIA/}. All costs and revenues higher than or equal to 20% of total costs / revenues have been included in the analysis, i.e. "Fixed asset investment", "Annual O&M cost", "Electricity tariff" and "Annual grid-in electricity". The threshold of each parameter to reach the benchmark and the likelihood of such variations taking place are explained. The analysis is considered to be appropriate.</p> <p>The validation team has reviewed the calculations for the sensitivity analysis, which are presented in the IRR spreadsheet^{/IRR/}. The calculations are reproduced as correct and consistent with the information presented in the PDD. The sensitivity analysis is assessed with respect to the likelihood of the variations of each parameter involved. Please refer to annex 3 of the report for detailed assessment.</p>	
3	Barrier analysis is not conducted.	N/A	<input type="checkbox"/> step passed <input type="checkbox"/> step not passed <input checked="" type="checkbox"/> not applicable

Step ¹⁾	Argument by PP	Assessment of the validation team	
4 a, b	<p>1. The applicable range is selected as +/-50% of the proposed project activity, which is 12~36MW.</p> <p>2. Yunnan Province is selected as the geographical scope for the common practice analysis of the project. The projects started after 2002, and before 2008-07-10 (without projects been registered or under validation as CDM project) has been identified as $N_{all}=N_{hydropower} + N_{other}$. The common practice analysis is based on the public available document "Hydro Power Yearbook of China Water Resources" (2006-2009)" by China Water & Power Press ^{u/HPY/} and the information published on UNFCCC website. Since 7 hydropower project has been identified i.e. $N_{hydropower}=7$. $N_{all}=7 + N_{other}$.</p> <p>3. N_{diff} is defined as different technology applied projects. Therefore, $N_{diff}=N_{hydropower} + N_{other}=7 + N_{other}$.</p> <p>4. It is calculated factor $F=1-N_{diff}/N_{all}=0$ and $N_{all}-N_{diff}=0$, i.e. the factor F is lower than 0.2 and $N_{all}-N_{diff}$ is lower than 3. Therefore, the project is not common practice.</p>	<div> <input type="checkbox"/> Argument not justified <input type="checkbox"/> Argument not convincing <input type="checkbox"/> Argument justified but not decisive <input checked="" type="checkbox"/> Argument justified / significant </div> <p>According to common practice guidelines, the step-wise analysis was applied. The region selected for common practice of Yunnan Province is assessed as appropriate and reasonable. A province is the second administrative level of China after the central government and it is authorized to execute administrative examination and approval for construction projects considering local regulations.</p> <p>The information source installed capacity of hydropower plant in China 2006-2009^{/HPY/} for the common practice analysis is publicly available and checked by the validation team. The information used is evaluated to be credible.</p> <p>7 hydropower projects are identified as similar project.</p> <ul style="list-style-type: none"> - Among them, 2 projects belong to the <i>West-East Electricity Transmission Projects</i>, which enjoy different investment climate from the project proponent. - One project is a captive project which is different from the project which is a grid-connected power plant. The investment incentive and expected return are different for a captive project. - Four projects have lower investment per kW compared to the proposed project. <p>The validation team checked the data sources (mainly web-links) provided by the PP in the PDD. It could be confirmed that the information presented is correct and accurate. Based on this and local validation expertise gained through many hydropower project validations</p>	<div> <input checked="" type="checkbox"/> step passed <input type="checkbox"/> step not passed <input type="checkbox"/> not applicable </div>

Step ¹⁾	Argument by PP	Assessment of the validation team	
		<p>by the validation team in Yunnan Province, it is concluded that the proposed project is not common practice.</p> <p>The underlying statistics show that the proposed project is not common practice in this region at the time of PDD preparation.</p>	
Assessment of the validation team		<input checked="" type="checkbox"/> project is additional <input type="checkbox"/> project is not additional	

Summary

As the PDD was published for global stakeholder consultation before the project starting date, the CDM prior consideration is confirmed without the notifications to EB and DNA. Real and continuous actions were taken in the course of the project implementation to secure CDM status. The investment analysis shows that the project's IRR post-tax is 7.24% and therefore lower than the benchmark of 10%. The sensitivity analysis and critical analysis on the key parameters including fixed asset investment, annual O&M cost, electricity tariff and annual grid-in electricity show that the project is not financially attractive. Furthermore, in conducting common practice analysis, the factor F is lower than 0.2 and $N_{all}-N_{diff}$ is lower than 3 underlying that the project is not a common practice project activity.

All data used is derived from the FSR and is valid at the time of investment decision. All the arguments and parameters in the PDD are well evidenced.

It can be confirmed by the validation team that the guidance to conduct a financial analysis is fully met and that all stipulations are considered. It has been confirmed by means of comparing the FSR and the IRR calculation that all values in the PDD and associated annexes are consistent with the FSR. It could be further verified that the FSR has been the basis of the decision to proceed with the project activity.

As per assessment in Annex 4 to this report, the assumptions made are assessed as reasonable.

Based on the assessment of CDM serious consideration, the comparison of economic attractiveness of the remaining alternatives, the sensitive analysis, the common practice analysis, which are demonstrated in above sections, the project is assessed as additional.

5.4 Monitoring Plan

According to ACM0002 ver. 13.0.0, the monitoring plan covers the following parameters required to be monitored, respectively:

- 1) The net quantity of electricity ($EG_{\text{facility},y}$) i.e. electricity supplied to and imported from the grid by the project activity ($EG_{\text{export},y}$ and $EG_{\text{import},y}$)
- 2) The installed capacity of the hydropower plant after the implementation of the project activity (CAP_{PJ})
- 3) Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (A_{PJ})

The monitoring plan can be implemented with regard to the description of measurement methods and QA/QC procedures. All the monitoring arrangements are feasible within the project design. The assessment conducted by the validation team is by means of review of the documented procedures, interviews with relevant personnel, project plans and physical inspections of the proposed CDM project activity site. Further detail is given as below.

The meter will be installed in accordance with the national standard and the calibration of the meter will be conducted by qualified organization and in compliance with the national standard.

The data will be archived during the crediting period and two years after the last issuance of CERs. The project owner will provide the DOE with reading records and operation logs for cross-checking purposes.

The procedure for calibration, accuracy and maintenance of monitoring equipment are clearly mentioned as per QA/QC procedure of the PDD.

Based on the validation team's local and sectoral knowledge, the measurement methods, recording procedures, meter maintenance and trouble-shooting procedures described in the monitoring plan are also required by the PP when dealing with electricity sales invoices, and this will be specified in the PPA once signed. Therefore, the procedures are considered standard and feasible in China and can fully meet the requirements of the CDM methodology. No difficulties are anticipated in implementing the operational and management structure or the monitoring plan as a whole.

Summary

The ex-ante estimates of the parameters have been confirmed by the validation team based on the detailed project design in the FSR, and based on the validation team's local and sectoral knowledge. TÜV NORD confirms the following:

- (a) the monitoring plan is fully in compliance with the requirements of the methodology ACM0002 ver. 13.0.0;
- (b) the monitoring arrangements described in the monitoring plan are feasible within the project design;
- (c) the project participants are able to implement the monitoring plan.

The assessment conducted by the validation team is by means of reviewing the documented procedures, interviews with relevant personnel, project plans and physical inspections of the proposed CDM project activity site.

5.5 Crediting Period

The crediting period starting date is 2013-01-01. The first renewable crediting period of the project (7 years) is chosen for proposed project and assessed as appropriate in the opinion of the validation team.

5.6 Environmental Impacts

Environmental Impacts Assessment is required according to Chinese legislation. The EIA report of the project has been approved by the provincial Environmental Protection Department^{/AEIA/}. The EIA report is reviewed by the validation team and further confirmed by interviewing local environmental official^{/IM03/}. The analysis of the environmental impacts of the project activity is sufficiently described in line with the EIA^{/EIA/}. According to the EIA, no significant environmental impacts as well as no trans-boundary impacts have been envisaged from this project activity. The identified impacts are subject to corresponding mitigation measures and are accurately described in the PDD.

5.7 Comments by Local Stakeholders

By means of document review including the Stakeholder Consultation Questionnaires^{/SHCP/} and interviews with local stakeholders^{/IM03/}, the validation team confirms that:

- (a) Comments have been asked for from local stakeholders that can reasonably be considered relevant for the proposed CDM project activity through a questionnaire survey;
- (b) The summary of the comments received as provided in the PDD is complete;
- (c) The stakeholders are all supportive to the project activity. And no due account of any comments received should be undertaken.

To conclude, the validation team is of the opinion that the local stakeholder consultation is adequate.

5.8 Participation

5.8.1 Project Participants

Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd is

authorized as China's participant in the approval letter of China's DNA^{/HCA/}. The HCA was provided by the PP as scanned version. The HCA has been carefully checked and authenticity was confirmed through the Chinese DNA website (<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2932.pdf>). The validation team could confirm that the project is listed as approved on the DNA website. The validation team confirmed that the HCA of proposed project is authentic.

5.8.2 LOA

The approval letter for the proposed project Luquan County Tiesuoqiao Hydropower Project has been issued by China's DNA on 2012-07-27.

The precise title of the project is Luquan County Tiesuoqiao Hydropower Project. It is consistent with the title in the approval letters of China.

The National Development and Reform Commission acts as China's DNA for the CDM, and is thus responsible for issuing letters of approval for voluntary participation to the prospective project participants.

In the letter of approval of the host country (China), it is confirmed that:

- Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd is authorized as China's participants to voluntarily participate in and carry out the project activity.
- The project complies with the permission requirements provided in the measures for operation and management of CDM project in China, and assists China in achieving sustainable development.

5.8.3 MoC

The corporate identity of all project participants and focal points is included in the Modalities of Communication (MoC) statement, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories. The MoC received from the PP with TÜV NORD has the contractual relationship.

The representatives who submitted the MoC statement to the DOE and the one who signed the written confirmation are duly authorized to do so on behalf of the respective project participant.

5.9 PDD editorial Aspects

The PDD is in compliance with the latest version of Project Design Document Form (F-CDM-PDD) Template (Version 04.1)^{/PDD-T/}.

The latest revised PDD has been submitted to the validation team. The contents of the PDD comply with the latest PDD guideline (Version 01.0)^{/GCP/}.

6 VALIDATION OPINION

Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "Luquan County Tiesuoqiao Hydropower Project" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board

In the course of the pre-validation 4 Corrective Action Requests (CARs) and 4 Clarification Requests (CLs) were raised and successfully closed.

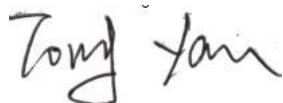
The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria (China) and all relevant UNFCCC requirements for CDM. Further the project activity is in compliance with the requirements set up by the applied approved CDM methodology ACM0002 ver 13 Project activity approval have been obtained from DNA of China vide the Letter of Approval (HCA) dated on 2012-07-27.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 504,308 t CO₂e are most likely to be achieved within the (1st renewable) crediting period.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

Shanghai, 2012-10-04



Yan, Tao
TÜV NORD JI/CDM CP
Validation Team Leader

Essen, 2012-10-04



Saalman, Martin
TÜV NORD JI/CDM CP
Final Approver

7 REFERENCES

Table 7-1: Documents provided by the project participant

Reference	Document
/AEIA/	Approval of Environmental Impact Assessment issued by Yunnan Province Environmental Protection Bureau, dated on 2007-02-12 Document No.: Yun Huan Xu Zhun[2007]17
/AFSR/	Approval of Feasibility Study Report issued by Kunming City Development and Reform Commission, dated on 2007-04-13 Document No.: Kun Fa Gai Neng Jiao [2007]179
/BLA/	Bank loan agreement signed between PP and China Agriculture Bank on 2008-08-20
/CC/	Civil Construction Contract signed on 2008-07-10
CMD	<ol style="list-style-type: none"> 1. CDM Management decision (Board Meeting Paper) dated 2007-12-12, 2. CDM consultancy agreement, signed with PP and Yunnan Huiliu Technology Co., Ltd, dated 2008-05-24 3. MoU to the consultant to push the CDM development 2009-02-12 4. Term sheet for CER purchase signed between Project owner and Renaissance Carbon Investment Ltd. on 2009-04-10 5. Termination letter for CER purchase Term sheet between Project owner and Renaissance Carbon Investment Ltd., dated 2010-04-10 6. CDM consultant contract terminated between the Project owner and Huiliu Science and Technology co., Ltd, dated 2010-09-04 7. CDM consultant contract signed between the Project owner and Hangzhou Yuneng Science and Technology co., Ltd, dated 2011-07-25 8. CDM Management decision on developing the project as unilateral CDM project (Board Meeting Paper) dated 2012-01-30
/EIA/	<ol style="list-style-type: none"> 1. Environmental Impact Assessment Report developed by Yunnan Province geological environmental monitoring station, dated in Dec. 2006 2. Qualification Certificate of Yunnan Province geological environmental monitoring station
/EPA/	Hydro turbine & generator (and auxiliary facilities) Purchasing Agreement between Project owner and Kunming electric machinery Co. Ltd. signed on 2008-09-18 version
/FSR/	<ol style="list-style-type: none"> 1. Feasibility Study Report developed by Yunnan Lubuge Consultant Co., Ltd. in March. 2007 2. Certificate of Yunnan Lubuge Consultant Co., Ltd.

Reference	Document
/HCA/	Host Country Approval, issued by National Development and Reform Commission of People's Republic of China on 2012-07-27, Chinese Document no. Fagaiqihou[2012]2305 and English version document no. 4367.
/IRR/	IRR calculation sheet
/MOC/	Modalities of Communication
/PDA/	Power Dispatch/Connection Approval issued by Yunnan Power Grid Company Kunming electric power Bureau on 2010-12-10, Document No.: Kundianji[2010]104
/PDD/	<ol style="list-style-type: none"> 1. Draft Project Design Document named "Luquan County Tiesuoqiao Hydropower Project" version 01, hosted from 29 May 12 - 27 Jun 12 2. Project Design Document named "Luquan County Tiesuoqiao Hydropower Project" final version, dated 2012-07-17
/PDD-T/	Project Design Document Form (F-CDM_PDD) - Version 04.0-04.1
/PSD/	Evidence of Project starting date 1. Project civil construction start order on 2008-07-15
/SHCP/	Stakeholder consultation process evidences: Questionnaires
/TP/	Training Plan for new stuff, including Management, Turbine & Generator unit, Transformer, Monitoring System etc.
/TS/	Technical Specification of turbine-generators
/XLS/	Emission reduction calculation spreadsheet

Table 7-2: Background investigation and assessment documents

Reference	Document
/ACM2/	ACM0002 ver 13: Consolidated baseline and monitoring methodology for grid-connected electricity generation from renewable sources
/CESY/	China Energy Statistics Yearbook

Reference	Document
/CEPY/	China Electric Power Yearbook
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/GAIA/	Guidance on the Assessment of Investment Analysis (Version 05)
/GCT/	Glossary of CDM terms (Version 06)
/GEF/	Official data sources for Grid Emission Factor (SCPG) published by the Chinese DNA
/GCP/	UNFCCC: Guidelines for completing the Project Design Document Form , (v. 01.0)
/HPY/	Hydro Power Yearbook of China Water Resources (2006-2009)
/IN/	Information note on the highest tariffs applied by the Executive Board in its decisions on registration of projects in the People's Republic of China (Version 02)
/IPCC/	<ul style="list-style-type: none"> • IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000 • Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual
/IREA/	Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects, published by State Grid Corporation of China
/KPI/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords & Annex to decision (17/CP.7))
/PLF/	Guidelines for the reporting and validation of plant load factors (Version 01, EB48, Annex 11)
/SL16-95/	Economic Evaluation Code for Small Hydropower Projects, No. SL16-95, issued by the Ministry of Water Resources of People's Republic of China
/SL16-10/	Economic Evaluation Code for Small Hydropower Projects, No. SL16-10, issued by the Ministry of Water Resources of People's Republic of China
/SL76-94/	Hydroenergy Design Code for Small Hydropower Project, No. SL76-94, issued by Ministry of Water Resources of People's Republic of China
/TA/	Tool for the demonstration and assessment of additionality (Ver. 6.0.0).

Reference	Document
/TEF/	Tool to calculate the emission factor for an electricity system (Version 02.2.1)
/VVS/	Validation and Verification Standard (Version 02.0, EB 65, Annex 4)

Table 7-3: Websites used

Reference	Link	Organisation
/cd4cdm/	www.cd4cdm.org	UNEP Riso Centre
/der/	http://tzs.ndrc.gov.cn/xkxmqj/xkxmyj/t20060802_78919.htm	National Development and Reform Commission
/dna/	http://cdm.ccchina.gov.cn/english/index.asp	National Development and Reform Commission (DNA of China)
/fxrr/	http://www.chinatax.gov.cn/n480462/n480498/n575817/1008375.html	State Administration of Taxation
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications
/lir/	http://www.pbc.gov.cn/publish/zhengcehuobisi/631/2011/20110708142554799484598/20110708142554799484598_.html	Monetary Policy Department, the People's Bank of China
/mep/	http://www.mep.gov.cn/	Ministry of Environmental Protection of the People's Republic of China
/stat/	http://www.stats.gov.cn/english/statisticaldata/yearlydata/	National Bureau of Statistics of China
/surtax-city/	http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951.htm	www.chinaacc.com
/surtax-education/	http://www.gov.cn/zwgg/2005-09/27/content_70440.htm	The Central People's Government of the People's Republic of China

Reference	Link	Organisation
/tariff/	http://www.ynf.gov.cn/canton_model13/newsview.aspx?id=38780	Yunnan Provincial Development and Reform Commission
/tax-income/	http://www.chinaacc.com/new/63/67/84/2001/9/ad447701111910023990.htm	www.chinaacc.com
/tax-vat/	http://www.chinaacc.com/new/63/67/84/2006/1/ti69381426571021600210776-0.htm	www.chinaacc.com
/unfccc/	http://cdm.unfccc.int	UNFCCC

Table 7-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Ye,Xiaoming	Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd/Manager
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kang, Yuanhua	Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd/Plant Operator
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Yang, Guangyi	Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd/Plant Operator
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Huang, Songhua	Yunnan Haolong Industry Group Luquan Hydropower Development Co., Ltd/Secretary
/IM02/		<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Chen, Yibing	Hangzhou Yuneng Technology Co., Ltd/Manager
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Zu, Kelin	Luquan County Environmental Protection Bureau/Director
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Li, Sishan	Luquan County Development and Reform committee/officer
/IM03/	V	<input checked="" type="checkbox"/> Mr.	Wu,Deyou	Luquan County/Villager



Reference	Mol ¹		Name	Organisation / Function
		<input type="checkbox"/> Ms		
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Li, Wenjin	Luquan County/Villager
/IM04/	T	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Jiang, Shaoqing	Renaissance Carbon Investment Ltd/ CER purchase buyer
/IM04/	T	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Wang, Min	Huiliu Science and Technology co., Ltd/ CDM consultant

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)

ANNEX

- A1:** Validation Protocol
- A2:** Assessment of Applicability Criteria
- A3:** Assessment of Baseline Identification
- A3:** Assessment of Financial Parameters
- A4:** Assessment of Barrier analysis
- A5:** Outcome of the GSCP
- A6:** Statement of competence of involved Personnel

ANNEX 1: VALIDATION PROTOCOL

Table A-1: Requirements Checklist

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
A. General Description of Project Activity				
A.1. Technology to be employed <i>Validation of project technology focuses on the project engineering, choice of technology and competence/maintenance needs. The DOE should ensure that environmentally safe and sound technology and know-how is used.</i>				
<p>A.1.1. Does the PDD contain a clear, accurate and complete project description?</p> <p>(VVS, v. 2.0, §§ 64, 69)</p> <p><i>The PDD shall contain a clear description of the project activity which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.</i></p> <p><i>Pl. consider esp. chapters A.1, A.3 (in case of LSC PDD) for assessment.</i></p> <p><i>§69 (a) Describe the process undertaken to validate the</i></p>	<p>/PDD/ /FSR/ /CC/ /IM01/</p>	<p><i>Description:</i></p> <p>The purpose of proposed project is to install and operate 2 sets of generators with a total capacity of 24 MW. The electricity will be generated by utilizing local water resources and then connected to the SCPG.</p> <p><i>Validator's action:</i></p> <p>For assessment the validation team has</p> <ul style="list-style-type: none"> (1) Reviewed the PDD in detail, (2) Checked the Feasibility Study Report, 	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>accuracy and completeness of the project description.</i> §69 (b) Contain the DOE's opinion on the accuracy and completeness of the project description.		(3) Checked the equipment supplier contract (4) Carried out interviews with the PPs. <i>Conclusion:</i> The project description can be assessed as clear, accurate and complete to provide the reader with a sufficient understanding of the project activity. No major incompleteness, inconsistencies or misleading information have been observed.		
A.1.2. Is this description in accordance with the real situation or (in case of greenfield projects) is it most likely that the project will be implemented acc to the project description?	/PDD/ /FSR/ /IM01/ /TS/	<i>Description:</i> The project's description in the PDD, especially with regard to the technical specifications, is based on the information which was indicated in the project's feasibility study report. <i>Validator's action:</i> For the purposes of cross-checking, the validation team conducted a physical site visit and checked the turbines and generators' specifications to confirm the information provided in the PDD is correct and the project will be implemented according to the project description. <i>Conclusion:</i> It's confirmed that the project will be implemented acc. to its design and the description in the PDD as well.	OK	OK
A.1.3. In case the project involves alteration of the existing installation or process, is a clear description available regarding the differences between the project and the pre-project situation? (VVS, v. 2.0, § 68)	/PDD/ /FSR/ /IM01/ /TS/	<i>Description:</i> The project is a newly built hydropower project and it doesn't involve any alteration of the existing installation or process. Therefore, the assumption is not applicable. <i>Validator's action:</i> By checking the relevant document and interviewing relevant person-	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>Describe the steps taken to validate this issue.</i>		nel, the validation team is convinced that no alteration is envisaged by this proposed project. <i>Conclusion:</i> N/A		
A.2. Small scale project activity <i>It is assessed whether the project qualifies as small-scale CDM project activity</i>				
A.2.1. Does the project fall within the small scale project activity threshold and applies a large-scale approved methodology? In this case, are the modalities and procedures for large-scale project activities followed? (VVS, v. 2.0, § 151)	N/A	<i>Description:</i> N/A <i>Validator's action:</i> N/A <i>Conclusion:</i> N/A	N/A	N/A
In case of project activities applying a LSC-Methodology, go to B.1				
A.2.2. Does the project qualify as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II? (VVS, v. 2.0., §§ 150–152) <i>Please indicate whether the project activity meets the eligibility criteria for small scale-projects. Specially consider whether the project qualifies within the thresholds of the</i>	N/A	<i>Description:</i> N/A <i>Validator's action:</i> N/A <i>Conclusion:</i> N/A	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>three possible types of small-scale project activities</i>				
<p>A.2.3. Does the project apply one of the approved small scale categories and any methodology and tool referred therein?</p> <p>(VVS, v. 2.0., § 152 (b)) <i>Check, if applicable the expiry dates of the applied methodology. Further, take into consideration the general guidance to the methodologies¹, which provide guidance on equipment capacity, equipment performance, sampling and other monitoring related issues.</i></p>	N/A	<p><i>Description:</i> N/A</p> <p><i>Validator's action:</i> N/A</p> <p><i>Conclusion:</i> N/A</p>	N/A	N/A
<p>A.2.4. Is the small scale project activity not a debundled component of a larger project activity?</p> <p>(VVS, v. 2.0, §§ 154-157) <i>Describe the steps taken to assess whether the project activity is not a debundled component of a large scale activity, in accordance to the "Guidelines on assessment of debundling for SSC project activities"..</i></p>	N/A	<p><i>Description:</i> N/A</p> <p><i>Validator's action:</i> N/A</p> <p><i>Conclusion:</i> N/A</p>	N/A	N/A
B. Project Baseline, Additionality and Monitoring Plan				

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
B.1. Reference of the Methodology				
B.1.1. Does the PDD correctly quote an applicable version of the methodology? (VVS, v. 2.0, § 74)	/PDD/ /unfccc /	<input checked="" type="checkbox"/> The applied methodology is correctly quoted and is identical to the version available on the UNFCCC website. <input checked="" type="checkbox"/> The applied version of the baseline and monitoring methodology is applicable and valid at the time of submission for stakeholder consultation.	OK	OK
B.2. Applicability of the Methodology				
B.2.1. Does the project apply an approved and applicable CDM methodology and a valid version thereof? (VVS, v. 2.0, §§ 70, 74, 76, 77) <i>Describe the steps taken to validate this issue.</i> <i>Describe for each applicability criterion listed in the selected approved methodology the steps taken to assess its fulfilment</i>	/PDD/ /unfccc /	<input checked="" type="checkbox"/> The applied methodology is correctly quoted and is identical to the version available on the UNFCCC Website. <input checked="" type="checkbox"/> The applied version of the baseline and monitoring methodology is valid at the time of submission for stakeholder consultation. <input type="checkbox"/> All applicability criteria in the methodology, the applied tools or any other methodology component referred to therein are fulfilled (please make detailed assessment in Annex 2 of this protocol). CL B1 is raised.	CL B1	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<p>B.2.2. In case one or more applicability criteria have not been met, has the validation team requested clarification to, revision of or deviation from the methodology in accordance with the latest guidelines?</p> <p>(VVS, v. 2.0., §§ 78-81)</p>	<p>/PDD/ /unfccc/ /IM01/ /IM03/</p>	<p><i>Description:</i></p> <p>The proposed project meets the criteria of ACM0002.</p> <p><i>Validator's action:</i></p> <p>Every applicable criterion prescribed in the methodology for the hydro project was reviewed and the technology was checked during the on-site visit.</p> <p><i>Conclusion:</i> It is not applicable.</p>	N/A	N/A
<p>B.3. Project Boundaries</p> <p><i>Project Boundaries are the limits and borders defining the GHG emission reduction project</i></p>				
<p>B.3.1. Are the project's spatial boundaries (geographical) clearly defined?</p> <p>(VVS, v. 2.0, §§ 72 (a), 82)</p> <p><i>Provide information on how the validation of the geographical boundary has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i></p>	<p>/PDD/ /ACM2/ /</p>	<p><i>Description:</i></p> <p>The spatial boundary is the project power plant and the electricity system that all power plants connected to which the CDM project is connected. In this specific case, the project is connected to the South China Power Grid (SCPG).</p> <p><i>Validator's action:</i></p> <p>By the means of on-site visiting and document reviewing^{/PDD/}, the project's boundary is clearly delineated according to the definition of project boundary by ACM0002.</p> <p><i>Conclusion:</i> It's assessed to be credible.</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<p>B.3.2. Are all sources and GHGs included in the project boundary as required in the applied methodology?</p> <p>(VVS, v. 2.0, §§ 82, 84)</p> <p><i>Provide information on how the validation of the GHGs and sources has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i></p>	<p>/PDD/ /FSR/ /IM01/ /ACM2 /</p>	<p><i>Description:</i></p> <p>All sources and GHGs are included in the project boundary.</p> <p><i>Validator's action:</i></p> <p>As per applied methodology ACM0002, emission sources are only related to the baseline emission i.e. CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The project emissions and leakage should not be considered.</p> <p><i>Conclusion:</i> As per methodology the main emission source (baseline) included in the project boundary is CO₂ produced by fossil-fuel fired power plants in the SCPG.</p>	OK	OK
<p>B.3.3. In case the methodology allows to choose whether a source and/or gas is to be included, is the choice sufficiently explained and justified?</p> <p>(VVS, v. 2.0, §§ 84, 87)</p> <p><i>Confirm if the Adequacy provided by the PPs is reasonable, based on assessment of supporting documented evidence provided by the PPs or by onsite observations.</i></p>	<p>/PDD/ /ACM2 / /TEF/</p>	<p><i>Description:</i></p> <p>The methodology does not include such a choice. According to the Emission Factor Tool^{TEF}, the calculation of the operating margin emission factor is calculated based on one of the four following options:</p> <ul style="list-style-type: none"> a Simple OM, or b Simple adjusted OM, or c Dispatch data analysis OM, or d Average OM. <p><i>Validator's action:</i></p> <p>ACM 0002 has been checked. The emission factor tool has been checked.</p> <p><i>Conclusion:</i> The choice of emission source were sufficiently explained</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
		and justified. The Simple OM has been identified to calculate operating margin emission factor which has been assessed as appropriate.		
<p>B.3.4. Have emission sources been identified, which are expected to contribute more than 1% of the overall expected average annual emissions reductions and which are not addressed by the selected approved methodology?</p> <p>(VVS, v. 2.0, § 87)</p> <p><i>Describe the steps taken to validate this issue. If any emission sources that are expected to contribute more than 1% have been identified, the DOE shall request clarification of, revision to, or deviation from the methodology, as appropriate.</i></p>	<p>/PDD/ /ACM2 / /IM01/</p>	<p><i>Description:</i></p> <p>Additional GHG emissions within the project activity, which are expected to contribute more than 1% of the overall expected average annual emission reductions and which are not addressed by the methodology are not considered.</p> <p><i>Validator's action:</i></p> <p>The methodology has been reviewed and unexpected sources of GHGs could not be observed during the on-site visit.</p> <p><i>Conclusion:</i> No additional GHG emissions which are not addressed by the methodology occurred.</p>	OK	OK
<p>B.4. Baseline Identification</p> <p><i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i></p>				
<p>B.4.1. Has the baseline scenario been determined according to the methodology?</p> <p>(VVS, v. 2.0, §§ 72 (b), 89, 87(e))</p>	<p>/PDD/ /ACM2 /</p>	<p><input checked="" type="checkbox"/> The baseline is defined by the applying methodology and the PDD refers to it.</p> <p>If the answer is Yes, continue to B.4.5</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>Describe how it is validated that the identification of the most plausible baseline scenario is carried out in accordance with the applied methodology and applied methodological tools. Please refer to table A-2.</i>		<input type="checkbox"/> The baseline is not directly defined by the applying methodology. For details of the assessment regarding the evaluation of the baseline scenario pl. refer to Table A-2. <input checked="" type="checkbox"/> The determination has been carried out as per the procedure contained in the applied methodology. <input type="checkbox"/> The following CARs / CLs have been identified with respect to the selection of the baseline scenario:		
B.4.2. Is the list of alternatives complete? (VVS, v. 2.0, § 90) <i>Describe how it was validated that all alternatives are plausible and that any scenarios that are supplementary to those required by the methodology are realistic and credible in the context of the project activity and that no alternative scenarios have been excluded.</i> <i>Fill in all alternatives in table A-2.</i>	/PDD/ /ACM2 /	<input checked="" type="checkbox"/> All plausible alternative scenarios listed in the approved methodology have been considered. In the course of document review and site visit, it has been validated that no other alternatives which supply comparable outputs and / or services are to be taken into consideration. Thus no plausible scenario has been excluded. <input type="checkbox"/> The following alternative scenarios/options have been omitted. Corresponding CAR(s)/CL(s) has /have been issued	OK	OK
B.4.3. Is the identified baseline scenario reasonable and has the baseline scenario been determined using conservative assumptions where possible, including relevant references and sources? (VVS, v. 2.0, § 91) <i>Describe whether the choice of the identified baseline scenario is reasonable by validating the key assumptions.</i>	/PDD/ /ACM2 /	<input checked="" type="checkbox"/> The baseline scenario is reasonable and has been determined using conservative assumptions where possible. Please refer to comments in Table A-2.. <input type="checkbox"/> The following CARs / CLs have been issued because assumptions used in the baseline determination have been assessed to be not conservative	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>calculations and rationales used in the PDD. Describe whether these are listed, relevant and <u>conservatively interpreted</u> in the PDD.</i>				
<p>B.4.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector.?</p> <p>(VVS, v. 2.0, § 93)</p> <p><i>Describe whether the PP has shown that all relevant policies and circumstances have been identified and correctly considered in the PDD. Two (2) types of national and/or sectoral policies have to be taken into account:</i></p> <p>(a) <i>National and/or sectoral policies or regulations that give comparative advantages to more emissions-intensive technologies or fuels over less emissions-intensive technologies or fuels, known as E+ policies. For this type of national and/or sectoral policies or regulations, only those that have been implemented before adoption of the Kyoto Protocol by the COP (decision 1/CP.3, 11 December 1997) shall be taken into account</i></p> <p>(b) <i>National and/or sectoral policies or regulations that give comparative advantages to less emissions-intensive technologies over more emissions-intensive technologies (e.g. public subsidies to promote the diffusion of renewable energy or to finance energy efficiency programmes), known as E- policies. For this type of national and/or sectoral</i></p>	<p>/PDD/ /ACM2 / /dna/</p>	<p><i>Description:</i></p> <p>The baseline scenario has taken into account relevant national and sectoral policies, macro-economic trends and political aspirations. The calculation of the emission factor was provided by the Chinese DNA, thus all national and sectoral policies regarding grid emission factor have been taken into account.</p> <p><i>Validator's action:</i></p> <p>The emission factor was provided by the Chinese DNA, the official website of Chinese DNA has been checked. The data and information sources are assessed to be reliable.</p> <p><i>Conclusion:</i> Requirements are fulfilled.</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<p><i>policies or regulations, those that have been implemented since the adoption by the COP of the CDM M&P (decision 17/CP.7, 11 November 2001) need not be taken into account in identifying a baseline scenario.</i></p>				
<p>B.4.5. What has been identified as the baseline scenario? Does the PDD contain a <i>verifiable</i> description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity?.</p> <p>(VVS, v. 2.0, § 88)</p>	<p>/PDD/ /ACM2 /</p>	<p><i>Description:</i></p> <p>The baseline of the project is defined as the same amount of electricity delivered to the grid by the project activity which would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources.</p> <p>The PDD contains a verifiable description of the identified baseline scenario, including a description of the technology that would be employed. The calculation of the emission factor was provided by the Chinese DNA, thus the technology regarding grid emission factor have been contained.</p> <p><i>Validator's action:</i></p> <p>The PDD has been reviewed and the description is in line with the applied methodology.</p> <p><i>Conclusion:</i></p> <p>The description of the identified baseline scenario is verifiable.</p>	<p>OK</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
B.5. Additionality Determination <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i>				
B.5.1. Methodology				
B.5.1.1. Does the PDD describe how the project is additional and does the additionality justification follow the requirements of the applied methodology and/or methodological tools? (VVS, v. 2.0, §§ 72 (d), 101-102) <i>Describe how it is validated that additionality justification is carried out in accordance with the applied methodology and/or applied methodological tools. Further focus your assessment on the reliability and credibility of data, rationales and assumptions, justifications and documentations provided by the PP.</i>	/PDD/ /TA/ /FSR/	<i>Description:</i> The PDD demonstrates the additionality of the project using the investment barriers analysis. <i>Validator's action:</i> The 'Tool for the demonstration and assessment of additionality' (Version 6.0) has been reviewed. And the FSR has been cross-checked. <i>Conclusion:</i> CAR B2 is raised.	CAR B2	OK
B.5.2. Consideration of CDM before project start				
B.5.2.1. In case the project start date is on or after 2 nd August 2008 has the PP informed the DNA and UNFCCC about the intention to seek CDM status? (VVS, v. 2.0, § 107, EB 62, Annex 13, § 5) <i>Describe whether such a notification has been provided by</i>	/PDD/ /CC/ /EPA/	<i>Description:</i> The project start date is before 2008-08-02. <i>Validator's action:</i>	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<p><i>the project participants within 180 days to the UNFCCC and host Party DNA and that further notifications, if necessary (two years from CDM Prior Notification letter without having published the PDD), have been sent to the UNFCCC. If NOT it shall be determined that the CDM was not seriously considered.</i></p> <p><i>Assess the project starting date in section C.1</i></p>		<p><i>Conclusion:</i></p>		
<p>In case the project starting date has been correctly defined on or after 2nd August 2008, go to B.5.2.4</p>				
<p>B.5.2.2. In case the project start date is before commencing of validation and 2nd August 2008, was the incentive from the CDM seriously considered by the project participants and the benefits of CDM were considered a decisive factor in the decision to proceed with the project?</p> <p>(VVS, v. 2.0, § 108 (a))</p> <p><i>Describe whether the evidences to support such considerations are adequately and transparently described in the PDD.</i></p> <p><i>Include an assessment on how was the CDM involved in the decision making process, as well as how and when the decision to proceed with the project activity was taken and whether the decision to proceed with the project was taken by a person which has the authority to do so.</i></p>	<p>/CDM/ /PDD/ /CC/ /EPA/</p>	<p><i>Description:</i></p> <p>The starting date of the proposed project activity is 2008-07-10 which is before commencing of validation. It is classified as “existing project” according to “Guidelines on the demonstration and assessment of prior consideration of the CDM”. The incentives from the CDM were seriously considered and stated in the PDD.</p> <p><i>Justification of evidences:</i></p> <p>The following documentation has been check by the validation team:</p> <ul style="list-style-type: none"> - The Board meeting resolution dated 2007-12-12 considering developing the project as a CDM project activity to overcome financial obstacle. - The CDM development contract dated 2008-05-24, signed with consultancy. <p><i>Conclusion:</i></p> <p>The CAR B2 is raised.</p>	<p>CAR B2</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>Include an assessment of the authenticity of the evidences.</i>				
<p>B.5.2.3. Does the documented evidence provided doubtlessly prove that continuous and real actions were taken in order to secure the CDM status?</p> <p>(VVS, v. 2.0, §§ 108;(b), 109, 110)</p> <p><i>Include an assessment on the gap between the documented evidences to secure the CDM status.</i></p> <p><i>When the gap is greater than two years and less than three, it has to be assessed whether continuing and real actions were taken to secure CDM status for the project activity.</i></p> <p><i>If the gap is greater than three years, it must be concluded that continuing and real actions were not taken to secure CDM status for the project activity).</i></p> <p><i>Describe the steps taken to validate that the real documented evidences are reliable and authentic.</i></p>	<p>/CC/ /PDD/</p>	<p><i>Description:</i></p> <p>The starting date of the proposed project activity is 2008-07-10 which is the date of signing the civil construction contract. The CDM consideration timeline has been provided in the PDD.</p> <p><i>Justification of evidences:</i></p> <p>The FSR, board meeting minutes, civil construction contract and the CDM consultant contracts have been checked by the validation team.</p> <p><i>Conclusion:</i></p> <p>The CAR B2 is raised.</p>	<p>CAR B2</p>	<p>OK</p>
<p>B.5.2.4. Does the proposed project activity comply with all applicable requirements related to the prior consideration of the CDM?</p> <p>(VVS, v. 2.0, § 112(c))</p> <p><i>Describe whether or not the project would have been undertaken without the incentive of the CDM.</i></p>	<p>/CC/ /PDD/ /CMD/ /FSR/</p>	<p><i>Description:</i></p> <p>The CDM has been considered in the FSR, and board meeting. The CDM consultant contract has been signed before the project started.</p> <p><i>Validator's action:</i></p> <p>The FSR, board meeting minutes, civil construction contract and the CDM consultant contracts have been checked by the validation team.</p> <p><i>Conclusion:</i></p> <p>The CAR B2 is raised.</p>	<p>CAR B2</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
B.5.3. Identification of alternatives Step 1 (in case of SSC projects pl. skip steps 1 and 2 if appropriate; in cases where the baseline scenario is prescribed in the approved methodology, skip step 1, (VVS, v. 2.0, § 115))				
B.5.3.1. Does the list of alternatives contain the status-quo situation, the project not undertaken as a CDM project as well as all other viable alternatives for supplying the outputs or services that are to be supplied by the proposed CDM project activity? Do all identified alternatives comply with enforced legislations? (VVS, v. 2.0, §§ 114, 116) <i>Describe whether the list of alternatives is credible and complete. Describe how it is validated that the list of alternatives is complete, realistic and that the alternatives are credible and that all alternatives comply with the existing and enforced legislation.</i> <i>Describe the steps taken to validate this issue on the basis of your local and sectoral knowledge.</i>	/PDD/ /IM01/	<i>Description:</i> The alternative is continuation of the current situation that means needed electricity will continue to be imported from SCPG. <i>Validator's action:</i> The validation team has checked the PDD and conducted interviews on-site. <i>Conclusion:</i> The alternatives contain the status quo situation. The alternatives contain the relevant issues.	OK	OK
B.5.4. Investment analysis Step 2 <i>In case the investment analysis as per step 2 is chosen to justify the additionality Annex 4 "Assessment of Financial Parameters" has to be used to provide additional details of the calculation parameters..</i>				

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<p>B.5.4.1. Does the PDD provide evidence that the project would not be the most economically or financially attractive alternative or economically / financially feasible without the revenues from the sale of CERs?</p> <p>(VVS, v. 2.0, § 117)</p> <p><i>In cases where the project activity would produce no financial or economic benefits other than CDM-related income, describe how it has been validated that at least one of the alternatives identified is less costly than the proposed project activity.</i></p>	<p>/PDD/ /IRR/ /FSR/ /IM01/</p>	<p><i>Description:</i></p> <p>The PDD states that the IRR of 7.24% (after tax) is lower than the benchmark of 10%, and a detailed sensitive analysis was provided.</p> <p><i>Validator's action:</i></p> <p>The information provided in the FSR, the PDD, the excel calculation sheets, governmental guidelines and interviews have been checked by the validation team.</p> <p><i>Conclusion:</i></p> <p>Not all relevant information could be provided or clearly referenced. Hence, the following CAR have been addressed:</p> <p>CAR B3 has been raised.</p>	CAR B3	OK
<p>B.5.4.2. Is a clear, viewable and unprotected Excel spreadsheet available for the investment calculation?</p> <p>(EB 62 Annex 5 , §8)</p> <p><i>Describe the steps taken to validate this issue.</i></p>	/IRR/	<p><input checked="" type="checkbox"/> Yes, a clear, viewable and unprotected Excel spreadsheet is available.</p> <p><input type="checkbox"/> No, a respective Excel spreadsheet needs to be made available for investment calculation.</p>	OK	OK
<p>B.5.4.3. Does the period chosen for the investment analysis reflect the technical lifetime of the project activity or in case a shorter period is chosen, is the fair value of the project activity's assets at the end of the investment analysis period (as a cash inflow) included?</p> <p>(EB 62 Annex 5 § 3)</p> <p><i>Describe how the technical lifetime / period chosen for</i></p>	<p>/PDD/ /FSR/ /EPA/</p>	<p><i>Description:</i></p> <p>The depreciation of the proposed project is 20 years and it was chosen to assess the cash flows for the project IRR. Scrap value is added back in the last year as cash inflow.</p> <p><i>Validator's action:</i></p> <p>The period of the project lifetime was indicated in the FSR and the Water Turbine-generator Purchase Agreement^{/EPA/} as well. The relevant documentations have been reviewed and checked during the</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>calculating financial parameter(s) is reviewed and which documents were utilised in the course of review. Describe furthermore the approach used to check the inclusion of a potential fair value.</i>		on-site visit. <i>Conclusion:</i> The 20 years for the investment analysis reflect the technical lifetime of the project activity. It fulfils the criteria.		
B.5.4.4. Is the fair value calculated in accordance with local accounting regulations (where available) or international best practice? (EB 62 Annex 5, § 4) <i>State the accounting regulations applied for calculating the fair value and describe why these are applicable under the project specific circumstances. Describe potential mismatches between regulations and the approach applied for calculating the fair value.</i>	/PDD/ /FSR/ /SL16-95/	<i>Description:</i> The depreciation of the proposed project is 20 years. The remaining assets determined as 5 % of total static investment is added as cash inflows. The principle is usually applied in China for such project activities. <i>Validator's action:</i> The calculation is provided in the FSR. It has been cross-checked with relevant guidance and rules provided by the Chinese government. <i>Conclusion:</i> The accounting principle for depreciation and the determination of the scrap value is assessed to be appropriate. It is further confirmed that the approach is in line with the regulation of CDM. It reflects the value of the project in the final year.	OK	OK
B.5.4.5. Is the book value as well as the expectation of the potential profit or loss included in the fair value calculation? (EB 62 Annex 5, § 4)	/PDD/ /FSR/ /SL16-95/	<i>Description:</i> The depreciation of the proposed project is 20 years. The remaining assets determined as 5 % of value of fixed asset is added as cash inflows. The principle is usually applied in China for such project activities. <i>Validator's action:</i> The calculation is provided in the FSR. It has been cross-checked with relevant guidance and rules provided by the Chinese government.	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
		<p><i>Conclusion:</i></p> <p>The accounting principle for depreciation and the determination of the scrap value is assessed to be appropriate. It is further confirmed that the approach is in line with the regulation of CDM. It reflects the value of the project in the final year.</p>		
<p>B.5.4.6. Is an appropriate analysis method chosen for the project (simple cost analysis, investment comparison analysis or benchmark analysis)?</p> <p>(EB 65 Annex 21, EB 62, Annex 5, §19)</p> <p><i>Describe why the selected analysis method is appropriate under consideration of potential revenues and costs, potential project alternatives and potential available benchmark values.</i></p> <p><i>Assess whether the alternative to the project activity is to supply the same or substitute products or services. In this case, an investment comparison analysis shall be used.</i></p>	<p>/PDD/ /SL16-95/</p>	<p><i>Description:</i></p> <p>Benchmark analysis was chosen by considering the characteristics of the project activity. The selected value of the benchmark is 10% which was derived from the “Economic Evaluation Code for Small Hydropower Projects” (SL16-95).</p> <p><i>Validator’s action:</i></p> <p>The PDD has been checked and compared to the stipulations as set out in the additionality tool.</p> <p><i>Conclusion:</i></p> <p>An appropriate analysis method has been chosen for the project.</p>	OK	OK
<p>B.5.4.7. Were the input values used in the investment analysis valid and applicable at the time of the investment decision?</p> <p>(EB 62 Annex 5, § 6)</p> <p><i>Describe the steps taken to validate this issue</i></p>	<p>/AFSR/ /PDD/ /IRR/ /FSR/</p>	<p><i>Description:</i></p> <p>The data source of input values is presented in the hosted PDD and IRR sheet is FSR, which is the basis of investment decision.</p> <p><i>Justification of evidences:</i></p> <p>It was verified by means of checking PDD, FSR, approval of FSR and IRR sheet.</p> <p><i>Conclusion:</i></p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
		The input values used in the investment analysis are valid and applicable at the time of the investment decision		
<p>B.5.4.8. Did implementation of the project ceased after its commencement and did implementation recommence after consideration of the CDM?</p> <p>(EB 62 Annex 5, § 7)</p> <p><i>Describe the reasons for ceasing the project and explain why the incentive from CDM was necessary to recommence the implementation.</i></p> <p><i>Assess whether the investment analysis reflects the economic decision-making context at point of the decision to recommence the project, i.e. capital costs incurred prior to the recommencement of the project are to be limited to the potential reuse/resale of tangible assets, demonstrating the value through assessment done by chartered specialists.</i></p>	<p>/PDD/ /IM01/ /IM03/</p>	<p><i>Description:</i></p> <p>The implementation of the project has not ceased after its commencement and the consideration of CDM prior to the implementation commencement. Therefore, it is not applicable.</p> <p><i>Validator's action:</i></p> <p>N/A</p> <p><i>Conclusion:</i></p> <p>N/A</p>	N/A	N/A
<p>B.5.4.9. Are the input parameters based on values from Feasibility Study Reports that are approved by national authorities for proposed project activities?</p> <p>(VVS, v. 2.0, § 122)</p> <p><i>In case the basis for input values is a Feasibility Study Report (FSR) describe how it has been ensured that the period in time between the finalisation of the FSR and the investment decision is sufficiently short so that it is unlikely that input values would have materially changed. Further confirm the consistency of values in FSR and PDD.</i></p>	<p>/PDD/ /FSR/ /AFSR/</p>	<p><i>Description:</i></p> <p>The input parameters are based on the FSR.</p> <p><i>Validator's action:</i></p> <p>The PDD, FSR and approval of FSR have been checked.</p> <p><i>Conclusion:</i> The input parameters are based on values from the Feasibility Study Reports that are approved by national authorities for proposed project activities.</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
In case a simple cost analysis has been done, go to B.5.5;				
<p>B.5.4.10.Has been a suitable financial indicator chosen by the project participants?</p> <p>(VVS, v. 2.0, § 120 (a))</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p>/PDD/ /SL16-95/ /SL16-10/</p>	<p><i>Description:</i></p> <p>The benchmark of electric power industry is 10% (after tax), which is sourced from Economic Evaluation Code for Small Hydropower Projects issued by the Ministry of Water Resources of People's Republic of China in 1995 and updated in 2010 (the new version in Year 2010 regarding benchmark is not changed).</p> <p><i>Validator's action:</i></p> <p>The PDD and 'Economic Evaluation Code for Small Hydropower Projects' has been checked.</p> <p><i>Conclusion:</i></p> <p>CAR B3 is raised.</p>	CAR B3	OK
<p>B.5.4.11.Are depreciation and other non-cash related items only considered in the tax calculation and not as cash outflow?</p> <p>(EB 62 Annex 5, § 5)</p>	<p>/PDD/ /IRR/</p>	<p><i>Description:</i></p> <p>The Excel sheet provided shows that non-cash related items and depreciation have not been accounted to calculate the financial indicator.</p> <p><i>Validator's action:</i></p> <p>The Excel sheet refers to data provided supplemental FSR. The supplemental FSR and the Excel sheet have been compared to come to a result.</p> <p><i>Conclusion:</i></p> <p>Depreciation and other non-cash items are not accounted in the IRR analysis.</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
B.5.4.12. Is the plant load factor (PLF) chosen in a conservative manner, taking into account that the PLF may be different in the framework of demonstrating additionality and calculating the ex-ante ER? (EB 48, Annex 11)	/PDD/ /FSR/ /IRR/	<p><i>Description:</i></p> <p>The plant load factor (PLF) has been chosen based on the FSR in a conservative manner.</p> <p><i>Validator's action:</i></p> <p>The project FSR, PDD and ex-ante ER calculation sheet have been checked by the validation team.</p> <p><i>Conclusion:</i></p> <p>The PLF is calculated in a conservative manner and is in line with the framework of demonstrating additionality and calculating the ex-ante ER.</p>	OK	OK
B.5.4.13. Does the PDD and related spreadsheets contain a sensitivity analysis and does the same contain variation of parameters which may vary throughout the project lifetime, (EB 62 Annex 5, § 20-21) <i>Describe relevance of parameters used in the sensitivity analysis as well as their likeliness to vary during the project's lifetime. Parameters which are fixed on the basis of contracts, PPAs etc. may not be subject to variation and not adequate.</i>	/PDD/ /FSR/ /IRR/	<p><i>Description:</i></p> <p>Four parameters were used for sensitivity analysis.</p> <p><i>Validator's action:</i></p> <p>The IRR spreadsheet was checked.</p> <p><i>Conclusion:</i> CAR B3 is raised.</p>	CAR B3	OK
B.5.4.14. Were only variables that constitute more than 20% of either total project costs or total project revenues subjected to reasonable variation? (EB 62 Annex 5, § 20)	/PDD/ /FSR/ /IRR/	<p><i>Description:</i></p> <p>Four parameters were selected for sensitivity analysis, only O&M cost and static total investment exceed 20% of total project cost. The other two parameters include electricity tariff and annual electricity output.</p> <p><i>Validator's action:</i></p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
		The IRR calculation spreadsheet has been checked. <i>Conclusion:</i> Four parameters were selected for sensitivity analysis.		
<p>B.5.4.15. Have parameters, constituting less than 20% of total project costs or revenues, been identified with potential material impact on the financial parameter?</p> <p>(EB 62 Annex 5, § 20) <i>Describe whether those parameters are considered in the sensitivity analysis?</i></p>	/PDD/ /IRR/	<p><i>Description:</i> As discussed above, the other two parameters constituting less than 20% of total project cost or revenues were also selected for sensitivity analysis.</p> <p><i>Validator's action:</i> The PDD and IRR spreadsheet was checked.</p> <p><i>Conclusion:</i> two parameters constituting less than 20% of total cost or revenues were also included in the sensitivity analysis.</p>	OK	OK
<p>B.5.4.16. Is the range of variation reasonable in the specific context of the project activity, taking into consideration historic trends in the business sector?</p> <p>(EB 62 Annex 5, § 21) <i>Describe whether the range of variation is appropriate with focus on historic developments, e.g. price of oil / labour etc., energy potential in the region in question.</i></p>	/PDD/ /IRR/	<p><i>Description:</i> Critical points analysis has been used to indicate the IRR of the proposed project.</p> <p><i>Validator's action:</i> The IRR calculation spreadsheet has been checked.</p> <p><i>Conclusion:</i> CAR B3 is raised.</p>	CAR B3	OK
<p>B.5.4.17. In case of project IRR: Are the costs of financing expenditures (loan repayments and interests) excluded from the calculation of project IRR?</p>	/PDD/ /IRR/ /FSR/	<p><input type="checkbox"/> N/A</p> <p><input checked="" type="checkbox"/> Yes, the costs of financing expenditures have been excluded.</p> <p><input type="checkbox"/> No, this requirement is not met.</p> <p>The project IRR has been adopted.</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
(EB 62 Annex 5, § 9)		In this context the following additional findings have been identified: N/A		
B.5.4.18. In case of equity IRR: Is the part of the investment costs, which is financed by equity, considered as net cash outflow and is the part financed by debt excluded in net cash outflow? (EB 62 Annex 5, § 10)	/PDD/ /IRR/ /FSR/	<input type="checkbox"/> N/A <input type="checkbox"/> Yes, in- and outflows have been considered correctly. <input checked="" type="checkbox"/> No, this requirement is not met. The project IRR has been adopted.	N/A	N/A
In case a comparison analysis has been done, go to B.5.5				
B.5.4.19. Is the type of benchmark chosen appropriate for the type of IRR calculated (e.g. local commercial lending rates or weighted average costs of capital for project IRR; required/expected returns on equity for equity IRR)? (EB 62 Annex 5, §12) <i>Describe the steps taken to validate this issue.</i>	/PDD/ /SL16-95/	<i>Description:</i> The project IRR is adapted to the proposed project. <i>Validator's action:</i> The guidance has been checked to ensure the property of the type of benchmark of the proposed project. <i>Conclusion:</i> CAR B3 is raised	CAR B3	OK
B.5.4.20. Is a pre-tax benchmark applied in case of project IRR is calculated? In cases where a post-tax benchmark is applied, assess whether actual interest payable is taken into account in the calculation of income tax.	/PDD/ /SL16-95/	<input type="checkbox"/> N/A <input type="checkbox"/> A pre-tax benchmark is applied <input type="checkbox"/> The benchmark is post-tax and the interest has been taken into account for the calculation	CAR B3	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
(EB 62 Annex 5, § 11) <i>If this is not the case, ensure that taxation is excluded from the investment analysis. As per the guidance it is recommended to select a pre tax benchmark in order to describe the steps taken in assessing this requirement.</i>		<input type="checkbox"/> No, this requirement is not met. In this context the following additional findings have been identified: the CAR B3 is raised.		
B.5.4.21. Have both benchmark and cash flows expressed consistently, i.e. real terms (excluding the effect of inflation) or nominal terms? <i>Describe the steps taken to validate this issue.</i>	/PDD/ /SL16-95/ /IRR/	<i>Description:</i> The both benchmark and cash flows have expressed consistently, i.e. real terms (excluding the effect of inflation) or nominal terms. <i>Validator's action:</i> The benchmark and IRR have been checked. <i>Conclusion:</i> The both benchmark and cash flows have been expressed consistently, i.e. real terms (excluding the effect of inflation) or nominal terms.	OK	OK
B.5.4.22. Is the benchmark value suitable for the project activity and is it reasonable to assume that no investment would be made at a rate of a lower return than the benchmark? (VVS, v. 2.0, § 121 (c)) <i>Describe whether it is reasonable to assume that a lower rate of return would consequently result in the baseline scenario.</i>	/PDD/ /SL16-95/ /IRR/	<i>Description:</i> The benchmark value for the proposed project activity is 10% in the PDD. <i>Validator's action:</i> The China's official guidance "Economic Evaluation Code for Small Hydropower Projects" has been checked. <i>Conclusion:</i> CAR B3 is raised	CAR B3	OK
B.5.4.23. Is the benchmark applied based on parameters that are available and standard	/PDD/	<i>Description:</i>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<p>in the market?</p> <p>(VVS, v. 2.0, 121 (b), EB 62 Annex 5, §§13, 15, 16, 18)</p> <p><i>Assess whether company-specific benchmarks or benchmarks based on parameters that are available in the market are suitable to the project activity. A benchmark that includes the subjective profitability expectations or risk profile of the project developer (size risk premiums, company own risk premium, etc) is not suitable for project activities open to be developed by other entities.</i></p> <p><i>If cost of equity is applied, assure that best financial practices are used and are based on data sources which can be cross-checked against third-party or publicly available sources.</i></p> <p><i>If cost of debt is used for the calculation of the benchmark, ensure that it is calculated as the cost of financing in the capital markets (e.g: commercial lending rates)</i></p> <p><i>If the cost/equity financing structure of the project is not yet available, 50% equity, 50% debt financing may be assumed as default.</i></p>	<p>/SL16-95/ /IRR/</p>	<p>The benchmark applied based on parameters that are available and standard in the market.</p> <p><i>Validator's action:</i></p> <p>The China's official guidance "Economic Evaluation Code for Small Hydropower Projects" has been checked.</p> <p><i>Conclusion:</i> It meets the requirement.</p>		
<p>Following checklist is intended for cases where intern company benchmarks are applied, otherwise go to B.5.5</p>				
<p>B.5.4.24. Is it ensured that the project cannot be developed by other developers than the PP, so that internal company benchmarks or expected returns are suitable for the project activity?</p> <p>(EB 62 Annex 5, §§ 13 – 14)</p> <p><i>Describe how it has been validated that there is only one possible</i></p>	<p>/PDD/ /unfccc/ /dna/ /AFSR/</p>	<p><i>Description:</i> The project cannot be developed by the other developers than the PP. Internal company benchmark/expected returns won't be applied for the proposed project. Therefore, it's not applicable.</p> <p><i>Validator's action:</i></p> <p>The validation team has interviewed the project owner. The project approval from Kunming City Development and Reform Commission has been crosschecked.</p>	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>project developer.</i>		<i>Conclusion:</i> It is confirmed that the project cannot be developed by other developers.		
B.5.4.25. Was the benchmark consistently used in the past by the same company for similar projects with similar risks? (EB 62 Annex 5, § 14) <i>If applicable, assess the past financial behaviour of the entity during the last 3 years in relation to similar projects.</i>	/PDD/ /unfccc/	<i>Description:</i> N/A <i>Validator's action:</i> N/A <i>Conclusion:</i> N/A	N/A	N/A
B.5.4.26. Was the cost of debt calculated based on the weighted average cost of debt financing of the legal entity owning the CDM project activity? (EB 62 Annex 5, § 16) <i>If applicable, assess whether loans, bonds or debt financing from a parent company are calculated according to the latest "Guidance on Investment Analysis".</i> <i>In case that the debt structure of the project is not yet available, the cost of debt can be assumed as the commercial lending rate in the company or the yield of a 10-year bond issued by the government of the host county.</i>	/PDD/ /unfccc/	<i>Description:</i> N/A <i>Validator's action:</i> N/A <i>Conclusion:</i> N/A	N/A	N/A
B.5.4.27. Does the equity/debt ratio of the project reflect the long-term debt/equity finance structure of the legal entity owning the assets of the project activity?	/PDD/ /unfccc/	<i>Description:</i> N/A <i>Validator's action:</i> N/A	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<p>(EB 62 Annex 5, § 17)</p> <p><i>Assess the latest balance sheets of the legal entity owning the assets of the project activity, in case these are available and audited by a third party within two years prior to the submission of the PDD for validation, and the accounting books reflect the total value of all assets needed for the project activity.</i></p> <p><i>If debt/equity financing structure is not available, 50% equity, 50% debt shall be considered as default.</i></p>		Conclusion: N/A		
B.5.5. Barrier analysis Step 3 or SSC additionality assessment				
<p>B.5.5.1. Are there any barriers given which have a clear and direct impact on the financial returns of the project?</p> <p>(VVS, v. 2.0, § 125)</p> <p><i>In case of LSC projects those issues <u>cannot be considered</u> as barriers and shall be assessed in the investment analysis. In case of SSC projects the same fundamentals as for LSC projects shall apply, i.e. the assessment of the investment barrier according to EB 62 Annex 5. Only unavailability of sources of finance and/or risk related barriers, for example, the risk related to technical failure that could have negative impact on financial performance are acceptable as barriers.</i></p>	/PDD/ /unfccc/	<p>Description: N/A</p> <p>Validator's action: N/A</p> <p>Conclusion: N/A</p>	N/A	N/A
B.5.5.2. Has the unavailability of means of finance for the project been described and adequately	/PDD/ /unfccc/	Description: N/A	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
substantiated? Do evidences doubtlessly prove that the financing of the project was assured only due to the benefit of the CDM? (EB 50 Annex 13, § 9)		Validator's action: N/A Conclusion: N/A		
B.5.5.3. Would provision of additional financial means lead to the mitigation of the barrier(s) demonstrated? (EB 50 Annex 13, § 7) <i>Describe why provision of additional financial means would not lead to mitigation of the barrier(s) demonstrated and hence analysing the project's additionality within the framework of an investment analysis is inappropriate. .</i>	/PDD/ /unfccc/	Description: N/A Validator's action: N/A Conclusion: N/A	N/A	N/A
B.5.5.4. How is it justified and evidenced that the barriers given in the PDD are real? (VVS, v. 2.0, § 126(a))	/PDD/ /unfccc/	Description: N/A Validator's action: N/A Conclusion: N/A	N/A	N/A
B.5.5.5. How is it justified that one or a set of real barriers prevent(s) the implementation of the project activity and do not prevent the implementation of at least one of the alternatives? (VVS, v. 2.0, § 126 (b))	/PDD/ /unfccc/	Description: N/A Validator's action: N/A Conclusion: N/A	N/A	N/A
B.5.5.6. Does the review of relevant background information on the nature of the	/PDD/ /unfccc/	Description: N/A	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
company(ies) and entity(ies) involved in the financing and implementation of the project sufficiently justify that the barriers related to the lack of access to capital, technologies and skilled labour are real? (EB 50 Annex 13, § 4)		Validator's action: N/A Conclusion: N/A		
B.5.5.7. Has it been demonstrated in an objective way how the CDM alleviates each of the identified barriers to a level that the project is not prevented anymore from occurring by any of the barriers? (EB 50 Annex 13, § 5)	/PDD/ /unfccc/	Description: N/A Validator's action: N/A Conclusion: N/A	N/A	N/A
B.5.6. Common practice analysis Step 4 (in case of SSC projects or first-of-its-kind LSC projects skip this step)				
B.5.6.1. Is the defined region for the common practice analysis appropriate for the technology/industry type? (VVS, v. 2.0, § 129(a)) <i>Describe why the project activity is not common practice in a transparent and unambiguous manner. If a region other than the entire host country is chosen, describe why this region is more appropriate.</i>	/PDD/	Description: The defined region for the common practice is Yunnan Province that is appropriate for hydro power project. Validator's action: It's assessed based on the validation team's sectoral knowledge and expertise. Conclusion: The CL B4 is raised.	CL B4	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
In case of projects activities applying ACM002, go to B.5.6.4				
<p>B.5.6.2. To what extent similar projects have been undertaken in the relevant region?</p> <p>(VVS, v. 2.0, § 129(b))</p> <p><i>Similar projects are considered those that take place in a comparable environment w.r.t. regulatory framework, investment climate, access to technology and financing, etc. Registered CDM PA and PA that have been published on the UNFCCC website are not to be considered as similar.</i></p>	/PDD/	<p><i>Description:</i></p> <p>The projects after 2002 have been chosen in the relevant region.</p> <p><i>Validator's action:</i></p> <p>The PDD has been checked.</p> <p><i>Conclusion:</i></p> <p>The CL B4 is raised.</p>	CL B4	OK
<p>B.5.6.3. In case similar projects are identified, are there any key differences between the proposed project and existing or ongoing projects and what kind of differences are observed?</p> <p>(VVS, v. 2.0, § 129(c))</p>	/PDD/	<p><i>Description:</i></p> <p>7 similar projects for the extent in the defined region are listed in the PDD.</p> <p><i>Justification of evidences:</i></p> <p>By means of PDD check and on-site visit with project owner.</p> <p><i>Conclusion:</i></p> <p>The similar projects are identified, there are key differences between project and existing or ongoing projects. The differences are observed.</p>	OK	OK
<p>B.5.6.4. In case of projects activities applying ACM002:</p> <p>Has an output range as +/- 50% of the design output of the project activity been calculated in order to define the capacity</p>	/PDD/ /TA/	<p><i>Description:</i></p> <p>The project applying ACM0002, an output range as +/- 50% of the design output of the project activity has been calculated.</p> <p><i>Validator's action:</i></p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
range for “similar” projects? (EB65 Annex 21, § 47)		The PDD has been checked. <i>Conclusion:</i> The output range of the projects’ identified are 12MW~36MW. It fulfils the requirement.		
B.5.6.5. In case of projects activities applying ACM002: Does N_{all} include only plants that have started commercial operation before the the start date of the project and are within the applicable output range? (EB65 Annex 21, § 47) <i>Under N_{all}, registered CDM projects and projects undergoing validation are not to be included.</i>	/PDD/ /TA/	<i>Description:</i> N_{all} includes plants that have started commercial operation before the the start date i.e. 2008-07-10 of the project and are within the applicable output range <i>Validator’s action:</i> The Additionality tool and the respective Web-link in the PDD have been checked. <i>Conclusion:</i> It fulfils requirement.	OK	OK
B.5.6.6. In case of projects activities applying ACM002: Does N_{diff} include only plants that apply different “technology” than the project activity? (EB65 Annex 21, §§ 9, 47) <i>The term “technology” refers to energy fuel, investment climate (access to technology, subsidies, legal regulations, etc...) or unit cost of output.</i> <i>Assess how the essential distinctions to identify the different measures have been carried out.</i>	/PDD/ /TA/	<i>Description:</i> 7 similar projects are identified as N_{diff} , <i>Validator’s action:</i> The Additionality tool and the respective Web-link in the PDD have been checked. <i>Conclusion:</i> N_{diff} include plants that apply different “technology” than the project activity.	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
B.5.7. Algorithms and/or formulae used to determine emissions reductions <i>It is assessed whether the steps taken and the equations and parameters applied in the PDD to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected methodology including applicable tool(s).</i>				
B.5.7.1. Are the equations applied correctly according to the applied approved methodology? (VVS, v. 2.0, §§ 72(c), 96) <i>Describe clearly the steps taken to assess whether the methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. Further take into consideration that all estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.</i>	/PDD/ /ACM2/ /TEF/	<input checked="" type="checkbox"/> The equations applied for calculation are correctly applied according to the approved methodology. <input type="checkbox"/> The following mistakes have been identified in this context:	OK	OK
B.5.7.2. In case the methodology allows for different methodological choices, are the equations applied properly justified and have they been used reflecting the other methodological choices (i.e. baseline identification)? (VVS, v. 2.0, §§ 97, 98)	/PDD/ /ACM2/ /TEF/	<i>Description:</i> N/A <i>Justification of evidences:</i> N/A <i>Conclusion:</i> N/A	N/A	N/A

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>Assess the correct selection and application of methodological choices. Describe whether proper justification has been provided (based on the choice of the baseline scenario, context of the project activity and other evidence provided) and whether the correct equations have been used reflecting the relevant methodological choices.</i>				
<p>B.5.7.3. Have conservative assumptions been used when calculating the project emissions?</p> <p>(VVS, v. 2.0, §§ 98, 99(a))</p> <p><i>Describe clearly the steps taken to assess whether all the assumptions and data used by the PP are listed in the PDD including references and sources and are conservatively interpreted in the PDD.</i></p>	<p>/PDD/ /ACM2/ /FSR/ /TEF/</p>	<p><i>Description:</i></p> <p>According to ACM0002, the project emission has to be determined by power density. The power density is calculated as 664.67 W/m^2, which is greater than 10 W/m^2. The surface area of the reservoir is sourced from the FSR.</p> <p><i>Validator's action:</i></p> <p>The FSR and ACM0002 have been checked.</p> <p><i>Conclusion:</i></p> <p>The project emission of this hydro project is zero.</p>	OK	OK
<p>B.5.7.4. Are all data sources and assumptions appropriate and parameters which remain fixed throughout the crediting period correct, applicable to the project and will lead to a conservative estimation of emission reductions?</p> <p>(VVS, v. 2.0, § 98)</p> <p><i>Describe clearly the steps taken to assess whether the values used for the fixed parameters are considered reasonable, correct and applicable in the context of the</i></p>	<p>/PDD/ /ACM2/ /IM01/</p>	<p><i>Description:</i></p> <p>Additional GHG emissions within the project activity, which are expected to contribute more than 1% of the overall expected average annual emission reductions and which are not addressed by the methodology are not considered.</p> <p><i>Validator's action:</i></p> <p>The methodology has been reviewed and unexpected sources of GHGs could not be observed during the on-site visit.</p> <p><i>Conclusion:</i></p> <p>No additional GHG emissions which are not addressed by the</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>project activity. Check esp. chapter 6.2 of the PDD.</i>		methodology occurred.		
<p>B.5.7.5. Are all ex-ante calculation values for monitoring parameters (as defined as per chapter B.7.1 of PDD) reasonable?</p> <p>(VVS, v. 2.0, § 98)</p> <p><i>Describe clearly the steps taken to assess whether the values used for the monitoring parameters are considered reasonable, applicable and conservative in the context of the project activity</i></p>	/PDD/ /ACM2/	<p><input checked="" type="checkbox"/> All “Values of data to be applied for the purpose of calculating expected emissions reductions” are considered to be reasonable, applicable and conservative.</p> <p><input type="checkbox"/> The following mistakes have been identified in this context:</p>	OK	OK
<p>B.5.7.6. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.</p> <p><i>Describe the steps taken to validate this issue.</i></p>	/PDD/ /FSR/ /TEF/ /ACM2/	<p><i>Description:</i></p> <p>The emission reductions are real, measurable and give long-term benefits related to the mitigation of climate change. The data is provided as per the methodology and the referenced tool, and as the data collection and analysis which were included in the FSR which is done by a qualified third party.</p> <p><i>Validator’s action:</i></p> <p>The calculations have been checked and the parameters have been cross-checked against the sources.</p> <p><i>Conclusion:</i></p> <p>It’s assessed to be credible.</p>	OK	OK
<p>B.5.8. Monitoring of Emission Reductions</p> <p><i>It is assessed whether the monitoring plan is appropriate for the project activity and in line with the</i></p>				

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>applied methodology.</i>				
<p>B.5.8.1. Are all monitoring parameters required by the applied methodology contained in the monitoring plan?</p> <p>(VVS, v. 2.0, §§ 72 (e), 131, 132 (a) (i))</p> <p><i>Assess whether all applicable parameters listed in the methodology are included in the monitoring plan.</i></p> <p><i>Pl. check further whether the selection of parameters not to be monitored (section B.6.2) is appropriate and in line with the applied methodology.</i></p> <p><i>In case of different approaches can be chosen acc. to the methodology assess whether the selection of parameters is justified and correct.</i></p>	<p>/PDD/ /ACM2/ /IM01/</p>	<p>Description: The monitoring parameters include the annual power delivered to the grid ($EG_{\text{facility},y}$), calculated with $EG_{\text{import},y}$ (Electricity from the Grid) and $EG_{\text{export},y}$ (Electricity to the Grid).</p> <p>Validator's action: All the monitoring parameters to be monitored are checked against the methodology.</p> <p>Conclusion: CAR B5 is raised.</p>	CAR B5	OK
<p>B.5.8.2. Are the means of monitoring of all parameters contained in the monitoring plan feasible within the project design?</p> <p>(VVS, v. 2.0, §§ 132 (b) (i), 133(b))</p> <p><i>Describe the steps undertaken to assess whether the monitoring arrangements described in the monitoring plan are feasible within the project design.</i></p>	<p>/PDD/ /ACM2/</p>	<p>Description: The monitoring parameters include the annual power delivered to the grid ($EG_{\text{facility},y}$), calculated with $EG_{\text{import},y}$ (Electricity from the Grid) and $EG_{\text{export},y}$ (Electricity to the Grid).</p> <p>Validator's action: All the monitoring parameters to be monitored are checked against the methodology.</p> <p>Conclusion: CAR B5 is raised.</p>	CAR B5	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)				Draft Concl.	Final Concl.
B.5.8.3. $EG_{\text{export},y}$, $EG_{\text{import},y}$, Cap_{PJ} , A_{PJ} (VVS, v. 2.0, § 132(a)– (ii)) <i>Indicate whether the provided information for the monitoring parameter complies with the approved methodology including applicable tool(s) in the aspects listed.</i> <i>For checking the use of international standards in the nomenclature, consider:</i> a) <i>Standard format (e.g. 1,000 representing one thousand and 1.0 representing one).</i> b) <i>Values shall be directly given in SI units – or additionally to original units transferred to SI.</i> c) <i>Short scale naming system: (Only) million = 10^6 and billion 10^9 shall be used.</i>	/PDD/ /ACM2/	Requirement	OK	Not OK	N/A	CAR B5	OK
		Label	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		Data Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		Description	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		Source of data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		Measurement equipment / measure method	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		Monitoring frequency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		QA/QC procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		Purpose of data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		Standard format	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		SI units	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		Short scale naming	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		The monitoring parameters including $EG_{\text{export},y}$, $EG_{\text{import},y}$, Cap_{PJ} , A_{PJ} are listed. However, the CAR B5 is raised.					
B.5.8.4. Have all means of implementing the monitoring plan, e.g. equations necessary for ex-post emission reduction calculation, been described clearly and in line with the	/PDD/ /ACM2/	Description: The monitoring parameters include the annual power delivered to the grid ($EG_{\text{facility},y}$), calculated with $EG_{\text{import},y}$ (Electricity from the Grid) and $EG_{\text{export},y}$ (Electricity to the Grid).				CAR B5	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
methodology? (VVS, v. 2.0, § 131) <i>Check whether all necessary equations have been provided in the PDD. Pl. consider that ex-post and ex-ante calculations might be different.</i> <i>Please consider that additional equations might be necessary to calculate auxiliary parameters.</i>		<i>Validator's action:</i> All the monitoring parameters to be monitored are checked against the methodology. <i>Conclusion:</i> CAR B5 is raised.		
B.5.8.5. Is it likely that the monitoring arrangements described in the PDD can properly be implemented in the context of the project activity? (VVS, v. 2.0, § 132(b) (i)) <i>Assess whether the described monitoring arrangements are sufficient and realistic to enable a thorough monitoring. Pl. consider also special monitoring conditions, e.g. downtimes of monitoring equipment etc.</i>	/PDD/ /ACM2/	<i>Description:</i> The monitoring parameters include the annual power delivered to the grid ($EG_{\text{facility},y}$), calculated with $EG_{\text{import},y}$ (Electricity from the Grid) and $EG_{\text{export},y}$ (Electricity to the Grid). <i>Validator's action:</i> All the monitoring parameters to be monitored are checked against the methodology. <i>Conclusion:</i> CAR B5 is raised.	CAR B5	OK
B.5.8.6. Are the QA/QC procedures appropriate sufficient to ensure the emission reductions achieved from the project activity can be reported ex-post and verified? (VVS, v. 2.0, § 132(b) (ii)) <i>Please consider the description given in section B.7.2. Describe which QA/QC provisions are considered. Address Quality Management System provisions, calibration and maintenance of equipment. Address further any review</i>	/PDD/ /ACM2/	<i>Description:</i> The QA/QC procedures has been described in the PDD. <i>Validator's action:</i> All the monitoring parameters to be monitored are checked against the methodology. <i>Conclusion:</i> CAR B5 is raised.	CAR B5	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>procedures.</i>				
<p>B.5.8.7. Are procedures identified for data management?</p> <p>(VVS, v. 2.0, § 132(b) (ii))</p> <p><i>Check whether appropriate provisions are considered for data management including responsibilities, what records to keep, storage area of records and how to process performance documentation</i></p> <p><i>Check further the data archiving provisions for the project activity and ensure that provisions are made to archive data for the whole crediting period + 2 years.</i></p>	<p>/PDD/ /ACM2/</p>	<p><i>Description:</i></p> <p>The calibration of meters conducted by a qualified organization must comply with national standard and sectoral regulations to ensure the accuracy. The calibration records must be archived together with other monitoring records.</p> <p><i>Validator's action:</i></p> <p>All the monitoring parameters to be monitored are checked against the methodology.</p> <p><i>Conclusion:</i></p> <p>The procedures are identified for data management.</p>	OK	OK
<p>C. Duration and Crediting Period</p> <p><i>It is assessed whether the temporary boundaries of the project are clearly defined.</i></p>				

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<p>C.1.1. Is the project start date consistent with the available evidences?</p> <p>(VVS, v. 2.0, § 106)</p> <p><i>Describe the evidence assessed regarding the prior consideration of the CDM (if necessary). Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.</i></p>	<p>/PDD/ /ACM2/ /CC/ /EPA/ /GCT/ /IM01/</p>	<p><i>Description:</i></p> <p>The starting date is based on the Civil Construction Contract.</p> <p><i>Validator's action:</i></p> <p>The original hydro turbine-generator purchase contract^{/EPA/} and the project construction contract^{/CC/} have been checked during the on-site visit. It was validated by means of cross-checking the items defined in the "Glossary of CDM terms" and relevant evidences for project implementation, construction and real action.</p> <p><i>Conclusion:</i> The project start date is consistent with the available evidences</p>	OK	OK
<p>C.1.2. Is the project's operational lifetime clearly defined and evidenced?</p> <p><i>Check whether the project lifetime is correctly defined. Consider the latest "Guidance on the assessment of investment analysis".</i></p> <p><i>Check in case of phased implementation this has been reflected throughout the whole PDD incl. the financial assessment, if applicable.</i></p>	<p>/PDD/ /FSR/ /TS/</p>	<p><i>Description:</i></p> <p>The project operational lifetime was defined as 20 years as per FSR, which is also in line with common practice of hydropower projects in China.</p> <p><i>Validator's action:</i></p> <p>The FSR and turbine and generator technical Information has been checked.</p> <p><i>Conclusion:</i></p> <p>The project's operational lifetime is clearly defined and evidenced.</p>	OK	OK
<p>C.1.3. Is the start of the crediting period clearly defined and reasonable?</p> <p><i>Check whether the envisaged starting date of the crediting period is realistic, taking into consideration the times needed</i></p>	<p>/PDD/</p>	<p><i>Description:</i></p> <p>The starting date of the crediting period is 2012-10-01.</p> <p><i>Validator's action:</i></p> <p>By means of interview with the PP. The PDD and ACM0002 have also</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>for validation and registration.</i>		been checked. <i>Conclusion:</i> The CL C1 is raised.		
D. Environmental Impacts <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the DOE.</i>				
D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)? (VVS, v. 2.0, § 134-135) <i>Check the host party regulations regarding EIA. If no requirements for an EIA exist, discuss whether the project participants conducted an analysis for the environmental impacts of the project activity.</i>	/EIA/ /PDD/	<i>Description:</i> In China, an Environmental Impacts Assessment is required according to the relevant Chinese legislation. No trans-boundary environmental impact created by the project activity has been identified and reported in the EIA. <i>Validator's action:</i> The requirement for compiling an Environmental Impact Assessment was indicated on the website http://english.mep.gov.cn/Policies_Regulations/policies/EIA1/200711/t20071120_113154.htm . <i>Conclusion:</i> The validation team confirms that in China an Environmental Impact Assessment Report is compulsory for the construction project.	OK	OK
D.1.2. In case an Environmental Impact Assessment (EIA) is requested by the host party, has it been carried out in accordance with the host Party procedures? (VVS, v. 2.0, § 135)	/EIA/ /AEIA/ /PDD/	<i>Description:</i> The EIA Report of the proposed project has been compiled by Yunnan Province geological environmental monitoring station in Dec. 2006 and approved by Yunnan Province Environmental Protection Bureau on 2007-02-12.	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>Check the EIA and its approval, if applicable.</i>		<p><i>Validator's action:</i></p> <p>The Environment Impact Assessment Report of the project has been provided to the validation team by the PP as well as the approval letter of Yunnan Province Environmental Protection Bureau.</p> <p>By checking the EIA Report and the approval letter during the on-site visit, the validation team confirms that the EIA Report has been compiled according to China's regulations and that there is no negative impact for the local environment due to the proposed project. In addition, the report was duly approved by the Chinese government.</p> <p><i>Conclusion:</i></p> <p>It's assessed as credible.</p>		
<p>D.1.3. Are transboundary environmental impacts considered in the analysis?</p> <p>(VVS, v. 2.0, § 134)</p> <p><i>Check the documents and local official sources / expertise regarding transboundary environmental impacts.</i></p>	<p>/AEIA/ /AFSR/ /EIA/ /PDD/</p>	<p><i>Description:</i></p> <p>According to the EIA, there is no trans-boundary environmental impact created by the project activity.</p> <p>The description is based on the EIA Report.</p> <p><i>Validator's action:</i></p> <p>The EIA Report has been checked. The validation team has also conducted an interview with relevant personnel regarding to the topic.</p> <p><i>Conclusion:</i></p> <p>There is no trans-boundary environmental impact of the project activity.</p>	OK	OK
<p>E. Stakeholder Comments</p> <p><i>The DOE should ensure that stakeholder comments have been invited with appropriate media and that due</i></p>				

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>account has been taken of any comments received.</i>				
<p>E.1.1. Have relevant local stakeholders been invited to consultation prior to the publication of the PDD?</p> <p>(VVS, v. 2.0, § 138-140)</p> <p><i>Check by means of document review and interviews with local stakeholders if and when a local stakeholder consultation process has been carried out.</i></p>	<p>/PDD/ /IM01/ /IM03/ /SHCP /</p>	<p><i>Description:</i></p> <p>Yes, relevant local stakeholders have been invited to consultation prior to the publication of the PDD.</p> <p><i>Validator's action:</i></p> <p>The validation team has interviewed the villagers living around the project site. The stakeholder consultation process conducted is considered to be sufficient.</p> <p><i>Conclusion:</i></p> <p>The project owner has fully considered the opinions from the local stakeholders.</p>	OK	OK
<p>E.1.2. Can the local stakeholder consultation process be assessed as adequate?</p> <p>(VVS, v. 2.0, § 138-140)</p> <p><i>Describe what assessment steps have been undertaken to assess the adequacy of the stakeholder consultation process. Give a final opinion on the adequacy.</i></p> <p><i>Please consider the following requirements in this context:</i></p> <p><i>(a) Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity, have been invited;</i></p> <p><i>(b) The summary of the comments received as provided in the PDD is complete;</i></p>	<p>/PDD/ /SHCP /</p>	<p><i>Description:</i></p> <p>The questionnaires regarding the project activities were sent to relevant stakeholders.</p> <p><i>Validator's action:</i></p> <p>The questionnaires have been checked. The detailed information on the summary of the stakeholder comments received from the survey has been provided and checked.</p> <p><i>Conclusion:</i></p> <p>The local stakeholder consultation process is assessed as adequate.</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
(c) <i>The project participants have taken due account of any comments received and have described this process in the PDD.</i>				
F. Others				
F.1. Approval – Contribution to Sustainable Development <i>The written approval of the parties involved is a mandatory requirement.</i>				
F.1.1. Have written approvals of all parties involved been provided to the validation team? (VVS, v. 2.0, § 38) <i>Indicate whether a letter of approval has been received, with a clear reference to the supporting documentation.</i> <i>Indicate whether this letter was provided to the DOE by the project participants or directly by the DNA</i>	/PDD/	<i>Description:</i> At the time of on-site validation, the Letter of Approvals from Host country was not available. <i>Validator's action:</i> The written approvals of all parties involved have not been provided. <i>Conclusion:</i> The CAR A1 was raised.	CAR A1	OK
F.1.2. Are the approvals issued from organisations listed as DNAs on the UNFCCC CDM website? (VVS, v. 2.0, §§ 41) <i>Indicate the means of validation employed to assess the</i>	/PDD/	<i>Description:</i> Please refer to F 1.1 of this check list. <i>Validator's action:</i>	CAR A1	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
<i>authenticity, i.e. in case of doubt whether LoA has been verified with the DNA. Further describe which entity submitted the LoA for validation.</i>		<i>Conclusion:</i> The CAR A1 was raised.		
F.1.3. Do the written approvals confirm that the corresponding party is a Party to the Kyoto Protocol? (VVS, v. 2.0, § 39(a))	/PDD/	<i>Description:</i> Please refer to F 1.1 of this check list. <i>Validator's action:</i> <i>Conclusion:</i> The CAR A1 was raised.	CAR A1	OK
F.1.4. Do the written approvals confirm that the participation is voluntary? (VVS, v. 2.0, § 39(b))	/PDD/	<i>Description:</i> Please refer to F 1.1 of this check list. <i>Validator's action:</i> <i>Conclusion:</i> The CAR A1 was raised.	CAR A1	OK
F.1.5. Does the written approval from the host country confirm that the project contributes to the sustainable development in the country? (VVS, v. 2.0, § 39(c))	/PDD/	<i>Description:</i> Please refer to F 1.1 of this check list. <i>Validator's action:</i> <i>Conclusion:</i> The CAR A1 was raised.	CAR A1	OK
F.1.6. Do the written approvals refer to the precise project title in the PDD submitted for registration or an additional specification of the project activity, e.g. PDD version number? (VVS, v. 2.0, §§ 39(d))	/PDD/	<i>Description:</i> Please refer to F 1.1 of this check list. <i>Validator's action:</i> <i>Conclusion:</i> The CAR A1 was raised.	CAR A1	OK
F.1.7. Are the written approvals unconditional with regard to F.1.3 to F.1.6?	/PDD/	<i>Description:</i> Please refer to F 1.1 of this check list.	CAR A1	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
(VVS, v. 2.0, § 40)		<i>Validator's action:</i> <i>Conclusion:</i> The CAR A1 was raised.		
F.1.8. Is the information regarding the project participants listed in tabular form in PDD and is internally consistent with the information provided in the section that contains the contact information of the project participants? (VVS, v. 2.0, § 46)	/PDD/	<i>Description:</i> The information regarding project participants listed in section A.4 and in Annex 1 of PDD are consistent. <i>Validator's action:</i> The PDD which has been provided by the PP was checked by the validation team. <i>Conclusion:</i> It is confirmed that section A4 and Annex 1 are internally consistent to each other with regards to the project participants' information.	CAR A1	OK
F.1.9. Are all project participants listed in the PDD approved at least by one Party involved? (VVS, v. 2.0, § 45) <i>Indicate whether the participation of the project participant(s) has been approved by a Party to the Kyoto Protocol.</i> <i>Describe the means of validation employed to draw this conclusion.</i>	/PDD/	<i>Description:</i> Please refer to F 1.1 of this check list. <i>Validator's action:</i> <i>Conclusion:</i> The CAR A1 was raised.	CAR A1	OK
F.1.10. Are any other project participants than those authorized as project participants listed in the PDD? (VVS, v. 2.0, § 47)	/PDD/	<i>Description:</i> Please refer to F 1.1 of this check list. <i>Validator's action:</i> <i>Conclusion:</i> The CAR A1 was raised.	CAR A1	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
F.2. Modalities of Communication Statement <i>A due diligence on the Modalities of Communication statement in accordance with the requirements established in the VVS is mandatory.</i>				
F.2.1. Has a valid Modalities of Communication (MoC) been provided to the validation team from a project participant with whom the DOE has a contractual relationship? (VVS, v. 02, § 55) <i>Indicate whether a MoC has been received, with a clear reference to the contractual relationship of the project participant with the DOE.</i>	-	<p><i>Description:</i> A direct contractual relation is established. MoC is missing</p> <p><i>Validator's action:</i> Contract can be provided to UNFCCC upon request.</p> <p><i>Conclusion:</i> The CAR A1 was raised.</p>	CAR A1	OK
F.2.2. Has the MoC been signed by a duly authorized person on behalf of the respective project participant? (VVS, v. 2.0, §§ 54, 56) <i>Please Indicate how the personal and corporate identities of all project participants and focal points included in the MoC statement have been validated,:</i>	-	<p>The personal and corporate identities of all project participants and focal points included in the MoC were validated by:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Directly checking evidence for corporate and personal entity <input type="checkbox"/> Notarized documentation <input type="checkbox"/> Written confirmation from the project participant that all corporate and personal details are accurate and valid. , including specimen signatures and employment status of their signaries whether a letter of approval has been received, with a clear reference to the supporting 	CAR A1	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
		documentation The CAR A1 was raised.		
F.2.3. Has the MoC statement correctly been completed? (VVS, v. 2.0, §§ 59, 60)	-	<input type="checkbox"/> The latest version of the form (F-CDM-MOC) has been used <input type="checkbox"/> Annex 1 of the MoC is correctly completed <input type="checkbox"/> The project participants' authorized signatories signing the MoC are also listed in Annex 1 of the MoC. The CAR A1 was raised.	CAR A1	OK
F.3. PDD editorial aspects <i>The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website.</i>				
F.3.1. Has the latest version of the PDD form been applied? (VVS, v. 2.0, § 62)	/PDD-T/ /unfccc/	<i>Description:</i> PDD version 04.1 has been applied. <i>Validator's action:</i> The version applicable on the UNFCCC website has been used to check. <i>Conclusion:</i> It's assessed to be correct.	OK	OK

Checklist Item (incl. guidance for the validation team)	Reference	Validation Team Comments (justification and substantiation of information, data and evidences)	Draft Concl.	Final Concl.
F.3.2. Has the PDD been duly filled in accordance with the latest guidance(s)? (VVS, v. 2.0, § 63)	/PDD/ /GCP/	<p><i>Description:</i></p> <p>The PDD has been duly filled in accordance with the latest version of PDD Guideline (Ver.01, EB66/Annex 8).</p> <p><i>Validator's action:</i></p> <p>The PDD was checked by comparing the requirements as set out in the guidelines.</p> <p><i>Conclusion:</i></p> <p>The PDD has been duly filled in accordance with the latest guidance(s)</p>	OK	OK

ANNEX 2: ASSESSMENT OF APPLICABILITY CRITERIA

Table A-2: Assessment of Applicability Criteria (VVS, v. 2.0 §§ 70 – 76)

Applicability Criteria	Evidence used	met	not met	N/A	Assessment of validation team (results and means of assessment)
This methodology is applicable to grid-connected renewable power generation project activities that: (a) install a new hydro power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); The project activity is the installation of hydro power plant/unit; The methodology is not applicable to project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site.	/FSR/ /AFSR/ /IM01/	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> The project activity is a grid-connected and installation of a new hydro power plant. The Project is a renewable power generation project activity that install a new hydro power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant). The project involves a new reservoir with a power density greater than 4 W/m². The project is not an activity that involves switching from fossil fuels to renewable energy sources at the site of the proposed project.

ANNEX 3: ASSESSMENT OF BASELINE IDENTIFICATION

Table A-3: Assessment of Baseline Identification (VVS, v. 2.0 §§ 88 – 95)

<input type="checkbox"/>	Baseline is pre-defined by the methodology
<input checked="" type="checkbox"/>	Assessment of baseline alternatives see below

Baseline Alternatives identified	In line with the Methodology?	Eliminated	Reasons for elimination / non-elimination from list of alternatives	Evidence used	DOE Assessment	
					Appropriateness of elimination	Assessment of validation team (results and means of assessment)
Equivalent annual electricity supplied by the South China Power Grid	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The baseline scenario is identified by the methodology ACM0002. ACM0002 does not provide any other alternatives.	ACM0002	<input checked="" type="checkbox"/>	The baseline scenario is correctly defined. To assess the applicability of the methodology and the validity of the baseline scenario, the assessment is conducted by reviewing the methodology.

ANNEX 4: ASSESSMENT OF FINANCIAL PARAMETERS

Table A-4: Assessment of Financial Parameters (VVS, v. 2.0, §§ 120, 121 / in case financial parameters stem from FSR §122,)

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
Fixed assets investment	175.09	Million CNY	Page 13-2, FSR	/FSR/ /EPA/ /unfccc/ /cd4cdm/	<input checked="" type="checkbox"/>	<p><i>Description:</i></p> <p>The fixed assets investment is derived from the FSR^{/FSR/}.</p> <p><i>Justification of Evidences:</i></p> <p>The unit cost of the proposed project is 7,295.4 CNY/kW according to FSR. The value of signed equipment purchasing and construction contracts^{/EPA/CC/} amounts to 178.12 million CNY which are available up to 2012-07. It is 1.7% higher of the estimated total fixed assets investment. Besides, other costs are likely to occur as the project is not completed yet.</p> <p>A threshold analysis was conducted by PP and shows if the fixed assets investment decreases by 22%, the benchmark will be reached. As justified above, the decrease of 22% in fixed assets investment is not likely to happen.</p> <p>Moreover, according to the statistic of all registered run-of-river hydropower CDM projects applying ACM0002 in Yunnan^{/unfccc/cd4cdm/}, unit cost of these projects ranges between 3,548 CNY/kW and 9,029 CNY/kW. The average unit cost is 7,295</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification																																																																	
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below																																																																	
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT																																																													
					Correctness of value applied	Comment																																																												
						<p>CNY/kW. The unit cost of the project falls into the range and is close to the average level. Considering the increasing trend of raw material and labour^{/stat/}, it can thus be considered as reasonable and appropriate.</p> <table border="1"> <thead> <tr> <th>Ref. No.</th> <th>Installed Capacity(MW)</th> <th>Unit Cost (CNY/KW)</th> </tr> </thead> <tbody> <tr><td>Project</td><td>24</td><td>7,295</td></tr> <tr><td>791</td><td>102.0</td><td>5,869</td></tr> <tr><td>1074</td><td>50.5</td><td>6,597</td></tr> <tr><td>1102</td><td>32.0</td><td>4,600</td></tr> <tr><td>1507</td><td>35.4</td><td>4,763</td></tr> <tr><td>1605</td><td>25.2</td><td>5,342</td></tr> <tr><td>1862</td><td>26.6</td><td>5,090</td></tr> <tr><td>2003</td><td>72.0</td><td>5,047</td></tr> <tr><td>2010</td><td>75.0</td><td>4,833</td></tr> <tr><td>2015</td><td>20.0</td><td>5,739</td></tr> <tr><td>2016</td><td>25.0</td><td>3,695</td></tr> <tr><td>2030</td><td>50.0</td><td>6,186</td></tr> <tr><td>2045</td><td>44.0</td><td>4,567</td></tr> <tr><td>2050</td><td>22.5</td><td>5,232</td></tr> <tr><td>2052</td><td>112.0</td><td>5,545</td></tr> <tr><td>2054</td><td>44.0</td><td>4,152</td></tr> <tr><td>2055</td><td>80.0</td><td>5,187</td></tr> <tr><td>2057</td><td>72.0</td><td>3,984</td></tr> <tr><td>2059</td><td>27.0</td><td>4,696</td></tr> </tbody> </table>	Ref. No.	Installed Capacity(MW)	Unit Cost (CNY/KW)	Project	24	7,295	791	102.0	5,869	1074	50.5	6,597	1102	32.0	4,600	1507	35.4	4,763	1605	25.2	5,342	1862	26.6	5,090	2003	72.0	5,047	2010	75.0	4,833	2015	20.0	5,739	2016	25.0	3,695	2030	50.0	6,186	2045	44.0	4,567	2050	22.5	5,232	2052	112.0	5,545	2054	44.0	4,152	2055	80.0	5,187	2057	72.0	3,984	2059	27.0	4,696
Ref. No.	Installed Capacity(MW)	Unit Cost (CNY/KW)																																																																
Project	24	7,295																																																																
791	102.0	5,869																																																																
1074	50.5	6,597																																																																
1102	32.0	4,600																																																																
1507	35.4	4,763																																																																
1605	25.2	5,342																																																																
1862	26.6	5,090																																																																
2003	72.0	5,047																																																																
2010	75.0	4,833																																																																
2015	20.0	5,739																																																																
2016	25.0	3,695																																																																
2030	50.0	6,186																																																																
2045	44.0	4,567																																																																
2050	22.5	5,232																																																																
2052	112.0	5,545																																																																
2054	44.0	4,152																																																																
2055	80.0	5,187																																																																
2057	72.0	3,984																																																																
2059	27.0	4,696																																																																

<input type="checkbox"/>	No financial parameters are used for additionality justification							
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below							
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT			
					Correctness of value applied	Comment		
						2063	16.5	5,483
						2064	20.0	6,681
						2080	52.5	3,548
						2114	70.0	4,958
						2199	43.8	4,137
						2580	10.5	5,583
						2624	20.0	6,959
						2625	24.0	4,671
						2688	28.0	4,724
						2690	64.0	5,105
						2803	20.0	4,942
						2804	24.9	4,443
						2815	24.0	5,280
						2828	25.2	3,986
						2837	25.0	6,480
						2859	32.0	6,238
						3063	40.0	4,994
						3101	30.0	5,600
						3103	20.0	5,499
						3299	49.0	8,266
						3377	18.9	5,347
						3385	20.0	6,220
						3390	60.0	4,490
						3537	50.0	5,787
						3547	30.0	5,533
						3747	20.0	4,726
						3866	20.0	6,298

<input type="checkbox"/>	No financial parameters are used for additionality justification																																																			
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below																																																			
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT																																															
					Correctness of value applied	Comment																																														
						<table border="1"> <tr><td>3882</td><td>21.0</td><td>6,892</td></tr> <tr><td>3888</td><td>31.5</td><td>7,814</td></tr> <tr><td>3900</td><td>20.5</td><td>7,006</td></tr> <tr><td>4111</td><td>18.9</td><td>7,358</td></tr> <tr><td>4233</td><td>21.6</td><td>6,317</td></tr> <tr><td>4504</td><td>51.0</td><td>5,532</td></tr> <tr><td>4859</td><td>22.5</td><td>7,024</td></tr> <tr><td>4868</td><td>18.0</td><td>4,870</td></tr> <tr><td>5282</td><td>24.0</td><td>6,561</td></tr> <tr><td>5288</td><td>18.0</td><td>9,029</td></tr> <tr><td>5383</td><td>20.0</td><td>5,525</td></tr> <tr><td>5519</td><td>17.0</td><td>6,556</td></tr> <tr><td>5532</td><td>35.0</td><td>5,283</td></tr> <tr><td>5611</td><td>75.0</td><td>6,364</td></tr> <tr><td>5878</td><td>96.0</td><td>5,795</td></tr> </table>	3882	21.0	6,892	3888	31.5	7,814	3900	20.5	7,006	4111	18.9	7,358	4233	21.6	6,317	4504	51.0	5,532	4859	22.5	7,024	4868	18.0	4,870	5282	24.0	6,561	5288	18.0	9,029	5383	20.0	5,525	5519	17.0	6,556	5532	35.0	5,283	5611	75.0	6,364	5878	96.0	5,795	
3882	21.0	6,892																																																		
3888	31.5	7,814																																																		
3900	20.5	7,006																																																		
4111	18.9	7,358																																																		
4233	21.6	6,317																																																		
4504	51.0	5,532																																																		
4859	22.5	7,024																																																		
4868	18.0	4,870																																																		
5282	24.0	6,561																																																		
5288	18.0	9,029																																																		
5383	20.0	5,525																																																		
5519	17.0	6,556																																																		
5532	35.0	5,283																																																		
5611	75.0	6,364																																																		
5878	96.0	5,795																																																		
						<p><i>Conclusion:</i> The applied value of this parameter was assessed as reasonable and appropriate.</p>																																														
Annual Electricity Supplied	113,940	MWh	Page 13-1, FSR	/FSR/ /SL16-95/ /SL76-94/	<input checked="" type="checkbox"/>	<p><i>Description:</i> The value is derived from the FSR and calculated as: Net electricity = annual power generation × effective coefficient × (1- self consumption rate) × (1- transmission loss) = 123,000 × 0.95 × (1-0.5%) × (1-2%) = 113,940 MWh.</p>																																														

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p><i>Justification of Evidences:</i></p> <p>According to SL16-95, the effective coefficient for no regulating grid-connected hydropower station can be selected between 0.70~0.90. The project has no regulating capacity and the coefficient is chosen as 0.95 which is very conservative.</p> <p>According to page 7 of SL76-94, the rate of power consumption by the plant should be within the range of 0.5%-1% and the line loss rate should be no more than 11%. Thus, 0.5% of self consumption and 2% of line loss are considered as reasonable and conservative.</p> <p>Furthermore, even no corrections are conducted to the annual power generation; the project IRR will still be lower than the benchmark.</p> <p>A threshold analysis was conducted by the PP showing that if the annual supplied power increases by 27.2%, the benchmark will be reached. As justified above, The power generation is calculated and designed based on 48-year data of local water resource (1954-2001) from local hydrometric station^{/FSR/}. The long-term monitoring data used for design has taken different water flow into consideration like flood year, dry year and normal year. The presented power generation represents an average level of multi-year statistics. Thus the increase of 27.2% of the annual supplied electricity for the whole crediting period is not likely.</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification																																																														
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below																																																														
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT																																																										
					Correctness of value applied	Comment																																																									
						<p>Moreover, according to the statistic of all registered run-of-river hydropower CDM projects applying ACM0002 in Yunnan^{/unfccc/cd4cdm/}, annual utilization hours of these projects ranges from 3,210h to 5,684h. The utilization hours 5125h of the project falls into the range can be considered as reasonable and applicable.</p> <table border="1"> <thead> <tr> <th>Ref. No.</th> <th>Installed Capacity(MW)</th> <th>Full time hour</th> </tr> </thead> <tbody> <tr><td>Project</td><td>24</td><td>5125</td></tr> <tr><td>791</td><td>102.0</td><td>4813</td></tr> <tr><td>1074</td><td>50.5</td><td>4550</td></tr> <tr><td>1102</td><td>32.0</td><td>4963</td></tr> <tr><td>1507</td><td>35.4</td><td>4271</td></tr> <tr><td>1605</td><td>25.2</td><td>5684</td></tr> <tr><td>1862</td><td>26.6</td><td>4694</td></tr> <tr><td>2003</td><td>72.0</td><td>4927</td></tr> <tr><td>2010</td><td>75.0</td><td>4040</td></tr> <tr><td>2015</td><td>20.0</td><td>3744</td></tr> <tr><td>2016</td><td>25.0</td><td>4568</td></tr> <tr><td>2030</td><td>50.0</td><td>4560</td></tr> <tr><td>2045</td><td>44.0</td><td>3828</td></tr> <tr><td>2050</td><td>22.5</td><td>4548</td></tr> <tr><td>2052</td><td>112.0</td><td>4493</td></tr> <tr><td>2054</td><td>44.0</td><td>4183</td></tr> <tr><td>2055</td><td>80.0</td><td>4573</td></tr> <tr><td>2057</td><td>72.0</td><td>4714</td></tr> </tbody> </table>	Ref. No.	Installed Capacity(MW)	Full time hour	Project	24	5125	791	102.0	4813	1074	50.5	4550	1102	32.0	4963	1507	35.4	4271	1605	25.2	5684	1862	26.6	4694	2003	72.0	4927	2010	75.0	4040	2015	20.0	3744	2016	25.0	4568	2030	50.0	4560	2045	44.0	3828	2050	22.5	4548	2052	112.0	4493	2054	44.0	4183	2055	80.0	4573	2057	72.0	4714
Ref. No.	Installed Capacity(MW)	Full time hour																																																													
Project	24	5125																																																													
791	102.0	4813																																																													
1074	50.5	4550																																																													
1102	32.0	4963																																																													
1507	35.4	4271																																																													
1605	25.2	5684																																																													
1862	26.6	4694																																																													
2003	72.0	4927																																																													
2010	75.0	4040																																																													
2015	20.0	3744																																																													
2016	25.0	4568																																																													
2030	50.0	4560																																																													
2045	44.0	3828																																																													
2050	22.5	4548																																																													
2052	112.0	4493																																																													
2054	44.0	4183																																																													
2055	80.0	4573																																																													
2057	72.0	4714																																																													

<input type="checkbox"/>	No financial parameters are used for additionality justification							
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below							
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT			
					Correctness of value applied	Comment		
						2059	27.0	4017
						2063	16.5	5320
						2064	20.0	4776
						2080	52.5	4457
						2114	70.0	4557
						2199	43.8	4110
						2580	10.5	3826
						2624	20.0	3978
						2625	24.0	4399
						2688	28.0	3400
						2690	64.0	4595
						2803	20.0	4795
						2804	24.9	4625
						2815	24.0	5043
						2828	25.2	3503
						2837	25.0	3697
						2859	32.0	4083
						3063	40.0	4114
						3101	30.0	3720
						3103	20.0	3893
						3299	49.0	5076
						3377	18.9	3717
						3385	20.0	4233
						3390	60.0	3679
						3537	50.0	4481
						3547	30.0	4455
						3747	20.0	4330

<input type="checkbox"/>	No financial parameters are used for additionality justification																																																						
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below																																																						
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT																																																		
					Correctness of value applied	Comment																																																	
						<table border="1"> <tr><td>3866</td><td>20.0</td><td>4714</td></tr> <tr><td>3882</td><td>21.0</td><td>3886</td></tr> <tr><td>3888</td><td>31.5</td><td>4379</td></tr> <tr><td>3900</td><td>20.5</td><td>4346</td></tr> <tr><td>4111</td><td>18.9</td><td>4791</td></tr> <tr><td>4233</td><td>21.6</td><td>4887</td></tr> <tr><td>4504</td><td>51.0</td><td>4875</td></tr> <tr><td>4859</td><td>22.5</td><td>3922</td></tr> <tr><td>4868</td><td>18.0</td><td>4776</td></tr> <tr><td>5282</td><td>24.0</td><td>4306</td></tr> <tr><td>5288</td><td>18.0</td><td>4358</td></tr> <tr><td>5383</td><td>20.0</td><td>3210</td></tr> <tr><td>5519</td><td>17.0</td><td>3874</td></tr> <tr><td>5532</td><td>35.0</td><td>4187</td></tr> <tr><td>5611</td><td>75.0</td><td>3955</td></tr> <tr><td>5878</td><td>96.0</td><td>4056</td></tr> </table>	3866	20.0	4714	3882	21.0	3886	3888	31.5	4379	3900	20.5	4346	4111	18.9	4791	4233	21.6	4887	4504	51.0	4875	4859	22.5	3922	4868	18.0	4776	5282	24.0	4306	5288	18.0	4358	5383	20.0	3210	5519	17.0	3874	5532	35.0	4187	5611	75.0	3955	5878	96.0	4056	
3866	20.0	4714																																																					
3882	21.0	3886																																																					
3888	31.5	4379																																																					
3900	20.5	4346																																																					
4111	18.9	4791																																																					
4233	21.6	4887																																																					
4504	51.0	4875																																																					
4859	22.5	3922																																																					
4868	18.0	4776																																																					
5282	24.0	4306																																																					
5288	18.0	4358																																																					
5383	20.0	3210																																																					
5519	17.0	3874																																																					
5532	35.0	4187																																																					
5611	75.0	3955																																																					
5878	96.0	4056																																																					
						<p><i>Conclusion:</i> The value is correctly calculated.</p>																																																	
Electricity tariff (VAT Incl.)	0.215	CNY/kWh	Page 13-1, FSR	/FSR/ /tariff/ /IN/	<input checked="" type="checkbox"/>	<p><i>Description:</i> The tariff is derived from the FSR.</p> <p><i>Justification of Evidences:</i> The price is estimated for the investment analysis in the FSR.</p>																																																	

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>In China, the tariff for power projects is strictly controlled and regulated by government authority. For the proposed project, the expected tariff of 0.215 CNY/kWh (incl. VAT) applied in the FSR is the most recently available at the time of investment decision and in accordance with the "Notification of the tariff" (Yun Fa Gai Jia Ge [2006] 28) issued by Yunnan Development and Reform Commission on 2006-01-06^{/tariff/}.</p> <p>Furthermore, according to the information note issued by EB^{/IN/}, the highest tariff of hydropower project in Yunnan is 0.215 CNY/kWh. The project activity can therefore apply this value.</p> <p>A threshold analysis was conducted by that PP that shows if the tariff increases by 26.7%, the benchmark will be reached. As the tariff is strictly controlled by government authority, it is impossible for the project owner to foresee the price trend of the tariff at the time of investment decision. It is not likely for reasonable investors to invest the project depending on the 26.7% increase of tariff.</p> <p><i>Conclusion:</i></p> <p>The tariff is assessed to be appropriate.</p>
Annual O&M costs	3.53	Million CNY	Page 13-3, FSR	/FSR/ /stat/ /SL16-94/	<input checked="" type="checkbox"/>	<p><i>Description:</i></p> <p>The value is derived from the FSR.</p> <p><i>Justification of Evidences:</i></p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>The annual O&M costs consist of salary and welfare, repair fee, insurance premium, material fee (including water fee) and miscellaneous costs.</p> <ul style="list-style-type: none"> - The salary is estimated as 12,000 CNY per year multiplying 22 workers. And the welfare is estimated as 41% of salary, totally 0.372 million CNY. <p>The average salary is appropriate by taking the economic and social development of local area into consideration^{/stat/}.</p> <p>The total staff numbers are determined based on SL16-95 including operation, repair and management.</p> <p>The 41% of welfare is in compliance with the national regulation and policy.</p> <ul style="list-style-type: none"> - The material fee is 0.12 million CNY: <p>5 CNY/kW of installed capacity for material based on sectoral expertise of the design institute with reference to other similar projects.</p> <ul style="list-style-type: none"> - The water resource fee is 0.399 million CNY: <p>0.0035 CNY/kWh of annual net power generation for water resource fee.</p> <ul style="list-style-type: none"> - The repair fee is estimated as 1% of the total static

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>investment.</p> <ul style="list-style-type: none"> - The insurance premium is calculated as 0.25% of the total static investment. - The miscellaneous cost is estimated as 12 CNY/kW of installed capacity based on sectoral expertise of the design institute with reference to other similar projects. <p>All sub-items of O&M costs have reasonable justifications based on the FSR. Furthermore, even the annual O&M costs decrease to zero, the project IRR is still below the benchmark.</p> <p><i>Conclusion:</i></p> <p>The annual O&M costs are assessed to be reasonable and appropriate.</p>
Value added tax	6%	-	Page 13-4, FSR	/FSR/ /tax-vat/	<input checked="" type="checkbox"/>	<p><i>Description:</i></p> <p>The value is derived from the government regulation^{/tax-vat/}.</p> <p><i>Justification of Evidences:</i></p> <p>According to Notice on Value-Added Tax Rate Adjustment of Agriculture Products and Value-Added Tax free of Some Items, issued by Ministry of Finance and State Administration of Taxation on 29/03/1994, ref no CaiShui[1994]4. It is prescribed in the notice that the Value-Added Tax Rate for small hydropower station</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						located under county-level is 6% of VAT. <i>Conclusion:</i> This parameter is correct and consistent with national regulation.
Enterprise income tax	33%	-	Page 13-4, FSR	/FSR/ /tax-income/	<input checked="" type="checkbox"/>	<i>Description:</i> The applied value 33% is derived from the FSR and it is in line with the "Enterprise Income Tax Law of the People's Republic of China"/tax-income/. <i>Justification of Evidences:</i> The Enterprise Income Law is applicable nationwide. And the rate of 33% is applicable for the project activity. <i>Conclusion:</i> This parameter is correct and consistent with national law.
City construction and maintenance surtax (of VAT)	1%	-	Page 13-4, FSR	/FSR/ /surtax-city/	<input checked="" type="checkbox"/>	<i>Description:</i> The applied value 1% share of VAT is derived from the FSR, and it is in line with the <i>Interim Regulations on City Maintenance and Construction Tax of the People's Republic of China/surtax-city/</i> (promulgated on Document [1985] No. 19 of the State Council on 1985-02-08. <i>Justification of evidences:</i>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>The tax rate is mandatory and applicable since 1985. Hence it is relevant for the purpose of the City construction and maintenance surtax determination.</p> <p><i>Conclusion:</i></p> <p>The applied value is in line with the data source.</p>
Education surtax (of VAT)	3%	-	Page 134, FSR	/FSR/ /surtax-education/	<input checked="" type="checkbox"/>	<p><i>Description:</i></p> <p>The applied value 3% share of VAT is derived from the FSR, and it is in line with the document <i>Decision of the State Council on Amending the Interim Provisions on the Collection of Educational Surcharges</i>^{/surtax-education/} (promulgated on Document <i>Order of the State Council No. 448</i> on August 20, 2005).</p> <p><i>Justification of Evidences:</i></p> <p>The above mentioned decision is effective since 2005-10-01. Hence it is relevant for the purpose of the Educational surtax determination.</p> <p><i>Conclusion:</i></p> <p>The Educational surtax is mandatory. The applied value is in line with the data source.</p>
Project lifetime	20	year	Page 13-2, FSR	/FSR/ /TS/	<input checked="" type="checkbox"/>	<p><i>Description:</i></p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>The value is derived from the FSR^{/FSR/} and was proven by the Technical Specification^{/TS/} of the gas engine/generators.</p> <p><i>Justification of Evidences:</i></p> <p>Both data sources have been assessed by the validation team as authentic and credible. The validation team is of the opinion that both data sources are relevant for the purpose of the determination of the project lifetime.</p> <p>Furthermore the validation team is of the opinion that 20 years is a typical lifetime of the hydropower projects.</p> <p><i>Conclusion:</i></p> <p>The applied value is in line with the data sources, and the data sources have been assessed by the validation team as authentic and credible.</p>
Residue rate	5%	-	Page 13-3, FSR	/FSR/ /fxrr/	<input checked="" type="checkbox"/>	<p><i>Description:</i></p> <p>The value is derived from the FSR.</p> <p><i>Justification of Evidences:</i></p> <p>It is in accordance with the Notice on Implementation of Adjustment for Residual Value Rate of Fixed Assets, issued by State Administration of Taxation on 2005-09-14 (ref No. Guo Shui Han [2005]883). It is prescribed in the notice that the residual</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>value rate of fixed assets for the projects after the issue date should be 5%. Hence, the validation team accepted the value as it is in compliance with national accounting principles.</p> <p><i>Conclusion:</i></p> <p>The value applied is assessed as appropriate.</p>
Depreciation period	20	years	Page 13-3, FSR	/FSR/ /SL16-95/	<input checked="" type="checkbox"/>	<p><i>Description:</i></p> <p>The value is derived from the FSR.</p> <p><i>Justification of Evidences:</i></p> <p>It is in line with the regulation in SL16-95 which is applicable for the project.</p> <p><i>Conclusion:</i></p> <p>The value applied is assessed as appropriate.</p>
Benchmark	10%	-	Page 13-1, FSR	/FSR/ /SL16-95/	<input checked="" type="checkbox"/>	<p><i>Description:</i></p> <p>The applied benchmark is in line with the benchmarks as per SL16-95.</p> <p><i>Justification of Evidences:</i></p> <p>SL16-95 is applicable to hydropower power projects which is not larger than 25 MW or not larger than 50 MW, if located in rural area.</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>The project is a hydropower project with an installed capacity of 24 MW and located in rural area of Yunnan Province which is confirmed by on-site visit and means of local stakeholder interviews. Thus, it is applicable to use the benchmark.</p> <p><i>Conclusion:</i></p> <p>The applied benchmark of 10% is in line with the value indicated in the applied data source. It is commonly applied for small hydropower projects in China.</p>
Installed Capacity	24 (2*12)	MW	Page 13-1, FSR	/FSR/ /EPA/ /TS/ /AFSR/ /AEIA/	<input checked="" type="checkbox"/>	<p><i>Description:</i></p> <p>The installed capacity is derived from the FSR.</p> <p><i>Justification of Evidences:</i></p> <p>It is in accordance with the turbine-generator purchasing contract. It is further confirmed by document review like the government approvals^{/AFSR/AEIA/} which clearly indicates the installed capacity and technology applied in the project activity.</p> <p><i>Conclusion:</i></p> <p>The applied value of this parameter was assessed as correct.</p>
Long term interest Rate	6.84	%	Feasibility Study Report / page 70	/FSR/ /InRt/	<input checked="" type="checkbox"/>	<p><i>Description:</i></p> <p>The long interest rate is in line with the value indicated in the FSR. This value is in line with the actual loan interest^{/InRt/} as justified by</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<p>the PP.</p> <p><i>Justification of Evidence:</i></p> <p>According to the latest “Guidelines on the assessment of investment analysis” (EB 62 Annex 5), in cases, where a post tax benchmark is applied, the actual loan interest needs to be taken into account to reflect the actual income tax. The interest rate of 6.84%, and the loan principle applied in the PDD are derived from the FSR. The interest rate of 6.84% is the prevailing commercial (http://www.boc.cn/finadata/lilv/fd32/200809/t20080918_2404.html) interest rate in China^{/lnR/} when compiling the FSR. And, both interest rate and loan principle are consistent with the FSR, finally confirmed by the FSR approval.</p> <p><i>Conclusion:</i></p> <p>The applied value is in line with provided data sources and deemed to be appropriately justified.</p>
Debt/equity ratio	70/30	-	Feasibility Study Report / page 70	/FSR/ /der/	<input checked="" type="checkbox"/>	<p><i>Description:</i></p> <p>The debt/equity ratio is derived from FSR.</p> <p><i>Justification of Evidences:</i></p> <p>It is cross-checked with the national regulation^{/der/} issued by State Council. The equity ratio in power industry project should be no less than 20%.</p>

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<i>Conclusion:</i> The ratio applied in the proposed project is considered as appropriate and in line with national regulation.

ANNEX 5: ASSESSMENT OF BARRIER ANALYSIS

Table A-5: Assessment of Barrier Analysis (VVS, v. 2.0, §§ 124-127)

<input checked="" type="checkbox"/>		No barrier parameters are used for additionality justification		
<input type="checkbox"/>		Assessment of barriers see below		
Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of validation team	
			Appropriateness of information source	Explanation of final result
			<input checked="" type="checkbox"/>	
			<input checked="" type="checkbox"/>	

ANNEX 6: OUTCOME OF THE GSCP

Table A-6: Outcome of the Global Stakeholder Consultation Process

(VVS Version 2.0, §§ 34- 37)

<input checked="" type="checkbox"/>	No comments were received during the global stakeholder consultation period					
<input type="checkbox"/>	Comments were received during the global stakeholder consultation period. The comments (in unedited form) and the consideration/response of the validation team are presented below:					
Comment No.:	Comment by:	Inserted on:	Subject	Comment ^{*)}	Action taken by the validation team to take due account on the comment ^{*)}	Conclusion (incl. CARs CLs or FARs)

^{*)} In case clarifications have been requested by the validation team corresponding rows shall be added

ANNEX 7: STATEMENTS OF COMPETENCE OF INVOLVED PERSONNEL**Statement of Competence**
Appointment and authorization according to the procedures
of the TÜV NORD JI/CDM Certification Program**Mr. Tao Yan**

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2014-09-26
VCS	Lead Assessor	2014-09-26

131 - Rev. 1, Date: 2011-09-27

**Statement of Competence**
Appointment and authorization according to the procedures
of the TÜV NORD JI/CDM Certification Program**Ms. Miao Yu**

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2015-06-27
VCS / ISO 14064-2	Lead Assessor	2015-06-27

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewable Energies

164 – Rev. 3, Date: 2012-05-28

**Statement of Competence**
Appointment and authorization according to the procedures
of the TÜV NORD JI/CDM Certification Program**Ms. Büsran Grünwald**

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2015-06-05
VCS / ISO 14064-2	Lead Assessor	2015-06-05

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.2	Renewable energies	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Tidal

245 – Rev. 2, Date: 2012-06-06

**Statement of Competence**
Appointment and authorization according to the procedures
of the TÜV NORD JI/CDM Certification Program**Mr. Martin Saalmann**

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2013-03-31
Ji	Senior Assessor Technical Reviewer	2013-03-31
VCS	Senior Assessor Technical Reviewer	2013-03-31

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.2	Renewable energies	1.2.4 Solar
13.1	Waste management and disposal	13.1.1 Waste management 13.1.2 Waste water management

022 – Rev. 3, Date: 2011-10-08