



VALIDATION REPORT

for the VCS Project Activity

Grouped Hydropower Plants in
Chongqing, Yunnan, Sichuan and
Guizhou Provinces, P.R.China

In
P.R. China

Report No. 01 996 9105053287
Version No. 03, 2009-11-05

TÜV Rheinland Japan Ltd.



Voluntary Carbon Standard 2007

Validation Report Template

19 November 2007

Validation Report:

Name of Verification company:	Date of the issue:
TÜV Rheinland Japan Ltd.	2009-11-05
Report Title:	Approved by:
Validation Report of Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou Provinces, P.R.China	Dr. Manfred Brinkmann
Client:	Project Title:
South Pole Carbon Management Ltd.	Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou Provinces, P.R.China
Summary:	
The validation team of TÜV Rheinland Japan Ltd. (TÜV Rheinland) has performed a validation of the "Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou Provinces, P.R.China" on the basis of Voluntary Carbon Standard (VCS) 2007.1 as well as criteria given to provide for consistent project operations, monitoring and reporting. The validation report and the validation protocol are summarizing the findings of the validation. The Validation was executed in the following steps so far: - Desk review of preliminary VCS PD (Version 01, 10th June 2009) - On-site visit with stakeholder interviews (14th to 24th June, 2009 and 5th July to 17th July 2009) - Issue of checklist with corrective action requests (CARs) and clarification requests	

(CLs) and the draft validation report & protocol

In summary, it is validation team's opinion that the Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou Provinces, P.R.China, as described in the VCS PD of October 13th, 2009, meets all relevant criteria as stated in VCS 2007.1 and correctly applies the baseline and monitoring methodology AMS.I.D (version 13). TÜV Rheinland thus requests the registration of the Project as a VCS Project.

Work carried out by:	Number of pages:
• Mr. Libo Ma (Team Leader) • Mr. Jiang Zhu (Team Member)	106

Abbreviations

ACM	Approved Consolidated Methodology
AFOLU	Agriculture, Forestry and Other Land Use
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CCPG	Central China Power Grid
CSPG	China Southern Power Grid
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EB	Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reduction
FSR	Feasibility Study Report
GHG	Greenhouse Gas(es)
GWh	Giga Watt Hours
GWP	Global Warming Potential
I	Interview
IETA	International Emission Trading Association
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
kW	Kilo Watt
kWh	Kilo Watt Hours
LoA	Letter of Approval
MP	Monitoring Plan
MWR	China Ministry of Water Resources
MWh	Mega Watt Hours
NCV	Net Calorific Value
NDRC	National Development and Reform Commission of China
NGO	Non-governmental Organization
ODA	Official Development Fund
OM	Operating Margin
PD	Project Description
PDR	Preliminary Design Report
PP	Project Participants
SEPA	State Environmental Protection Administration of China
SHP	Small Hydropower Project
t	Tonne
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value-added Tax
VCS	Voluntary Carbon Standard
VCU	Voluntary Carbon Unit

TABLE OF CONTENTS

1 INTRODUCTION	6
1.1 Objective	6
1.2 Scope and Criteria	6
1.3 VCS Project Description	6
1.4 Level of Assurance	7
1.5 Validation Team	7
2 METHODOLOGY	7
2.1 Review of Document	8
2.2 Follow-up Interviews	9
2.3 Resolution of Any Material Discrepancy	13
3 VALIDATION FINDINGS	15
3.1 Project Participants	15
3.2 Project Grouping	15
3.3 Project Design	17
3.4 Baseline	19
3.5 Monitoring	28
3.6 Calculation of GHG Emission	29
3.7 Environmental Impacts	31
3.8 Comments by Stakeholders	32
4 VALIDATION CONCLUSION	33
Appendix A: Validation Protocol	
Appendix B: Certificates of Competence	

1 INTRODUCTION

South Pole Carbon Management Ltd. has commissioned TÜV Rheinland Japan Ltd. to perform a validation of the “Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou provinces, P.R.China” (hereafter called “the Grouped Project”) in P.R.China.

This report describes the validation process and the findings of the validation performed on the basis of Voluntary Carbon Standard (VCS) 2007.1 as well as criteria to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The purpose of the validation is to provide an independent third party assessment of the project design. More specifically, the project's baseline data, monitoring plan, and the project's compliance with relevant VCS criteria are validated to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is necessary to provide assurance to stakeholders of the quality of the project and its intended generation of verified Voluntary Carbon Unit (VCU).

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the VCS project description (PD). The VCS PD is reviewed against the relevant criteria as stated in VCS 2007.1, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach. The approach requires validation focus on the identification of significant risks for project implementation and the generation of VCU.

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

1.3 VCS Project Description

The Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou provinces, P.R.China is a grouped project under VCS 2007.1, which consists of 95 run-of-river hydropower stations in less-developed rural areas of south-western China. There are four sub-groups (i.e. 9 projects are located in Yunnan Province, 67 in Chongqing City, 13 in Sichuan Province and 6 in Guizhou Province), which are determined by the geographical boundary¹.

The electricity generated from the Grouped Project will be supplied to Central China

¹ There were totally 98 projects within the Grouped Project in the VCS PD of 10th June 2009. However, all retrofitted projects (i.e. Project No. 17, 19 and 89) have been withdrawn from the grouped project during validation. Therefore, the final project list consists of 95 projects.

Power Grid (CCPG) and China Southern Power Grid (CSPG), where geographic and system boundaries can be clearly identified and information on the grid and calculation of baseline emissions is published and public available according to *China DNA's Guidance on China Grid Baseline Emission Factors/18/* dated on 18th July 2008.

The CCPG and CSPG are both dominated by thermal power plants as per the *China Electrical Power Yearbook 2003~2007/11//12/*. By exporting annual electricity of 470,996 MWh and 356,851 MWh to the CCPG and CSPG respectively, the project activity achieves greenhouse gas (GHG) emissions reductions by displacing electricity from fossil fuel based power plants connected to the grid.

1.4 Level of Assurance

TÜV Rheinland provides assurance that the “Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou provinces, P.R.China” meets VCS 2007.1 criteria. To ensure complete transparency, TÜV Rheinland included a validation protocol in Appendix A. The validation protocol addresses all the criteria that are required to be met by the VCS standard. Any clarification or corrective actions raised have been included in the validation protocol, along with the changes implemented and responses.

1.5 Validation Team

The validation team consists of the following personnel:

Role	Full Name	Appointed for Sectoral Scopes	Affiliation
Team Leader	Mr. Ma Libo	1	TÜV Rheinland (China) Ltd.
Team Member	Mr. Zhu Jiang	1	TÜV Rheinland (China) Ltd.
Technical Reviewer	Dr. Manfred Brinkmann	1, 3, 4, 5, 6, 10, 11, 12, 13	TÜV Rheinland Japan Ltd.

2 METHODOLOGY

The validation consists of the following three phases:

- I a desk review of the project design documents
- II on-site visit and follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

2.1 Review of Document

The following table outlines the main documentation reviewed during the validation:

- /1/ South Pole Carbon Management Ltd., VCS PD of Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou Provinces, P.R.China, 10th June 2009, 24th August 2009 and 13th October 2009.
- /2/ VCS Board, Voluntary Carbon Standard 2007.1, 18th November 2008.
- /3/ International Organization for Standardization, ISO 14064- 2:2006, ISO 14064-3:2006 and ISO 14065:2007 (ISO, www.iso.org).
- /4/ CDM Executive Board, Clean Development Mechanism Validation and Verification Manual, Annex 3/EB44, 28th November 2008.
- /5/ South Pole Carbon Management Ltd., Ex-post Financial Calculation Spreadsheets for “Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou Provinces, P.R.China” , 10th June 2009 and 18th September 2009.
- /6/ South Pole Carbon Management Ltd., Project List and Emissions Reduction Calculation Spreadsheets for “Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou Provinces, P.R.China”, 10th June 2009 and 13th October 2009.
- /7/ CDM Executive Board, AMS-I.D. version 13, Grid connected renewable electricity generation.
- /8/ CDM Executive Board, Attachment A to Appendix B of the Simplified Modalities and Procedures for Small-scale Project Activities Version 06, 30th September 2005.
- /9/ CDM Executive Board, Tool to calculate the emission factor for an electricity system, version 01.1, EB35, 19th October 2007.
- /10/ IPCC: Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories Reference Manual. 2006.
- /11/ China Electric Power Yearbook 2002~2007.
- /12/ China Energy Statistical Yearbook 2004~2007.
- /13/ Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- /14/ Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- /15/ State Council, Statue on Enterprise Income Tax in China, 1993.
- /16/ Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- /17/ State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

- /18/ Chinese DNA, 2008 Baseline Emission Factors for Regional Power Grids in China, 18th July 2008².
- /19/ China Government, Environment Impact Assessment Law, 28th October 2002.
- /20/ Government of People's Republic of China, Chinese Renewable Energy Law, 28th February 2005.
- /21/ Chinese National Development and Reform Commission, Provisional Administrative Measures on Pricing and Cost Sharing for Renewable Energy Power Generation, 4th January 2006.
- /22/ Liu Jinghe and Li Zhiwu, Incentive Policy Framework Design for Small Hydropower in China, Small Hydro Power 2003.
- /23/ Fuhua Jiang and Xiaozhong Du, The current situation and problems of our small hydro power development in China", Regional Electrical Management, 2004-5.
- /24/ Francis Li, Hydropower in China, Energy Policy, Volume 30, Issue 14, November 2002, Pages 1241-1249.
- /25/ Center for Environmental Science and Policy, Stanford University, Rural Electrification in China 1950-2004 – Historical Processes and Key Driving Forces, December 2006.
- /26/ Qin Dahe, Chen Yiyu and Li Xueyong, Climate and Environment Change in China", China Science Press, 2005, Beijing.
- /27/ Wulong Small Hydropower Association, The meeting minute for the small hydro electrical tariff, August 2008.
- /28/ Chen Xinghua, Brief Analysis of small hydro feed in tariff, Hydro Electrical Power Engineering Cost March 2004.
- /29/ Sheng Zhou, Xiliang Zhang and Jinghe Liu, The Trend of Small Hydropower Development in China, Renewable Energy, Volume 34, Issue 4, April 2009.
- /30/ National Development and Reform Committee, Notification to raise the tariff of Central China Power Grid (NDRC Price (2008) No.1681,
- /31/ Zhou Sheng, Liu jinghe, Competiveness of China in small hydropower market, China Water Resources-Hydropower and Rural Electrification, 2006.
- /32/ Jingfu Wang and Jinghe Liu, The Rural Hydropower Capacity – Deductions and Policy Orientation, Water Resources Development Research 3(2004),
- /33/ China Hydro Power and Electrization, Discussion of the impact of the snowstorm on rural hydropower development, June 2008.

2.2 Follow-up Interviews

Identify any personnel who have been interviewed and/or provided additional information to the presented documentation.

² <http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=3239>

Place: Wulong County, Chongqing City, P.R.China

	Date	Name	Organization	Topic
/i/	2009-06-16	Mr. Liao Zhenghua	Chairman of Wulong County Small Hydropower Association	- Project background - Local hydropower development - Investment barriers - Project finance
/ii/	2009-06-16	Mr. Xuebing	General Secretary of Wulong County Small Hydropower Association	- Environmental impact - Sustainable development
/iii/	2009-06-16	Mr. Honglin	General Manager of Wulong County Canglong Hydropower Co., Ltd.	- Project management - Hydropower development barrier - Financial issues
/iv/	2009-06-16	Mr. Guiquan	General Manager of Wulong County Haoyun Hydropower Co., Ltd.	- Environmental impact - Monitoring issues
/v/	2009-06-16	Mr. Tinghua	General Manager of Wulong County Songshigou Hydropower Co., Ltd.	
/vi/	2009-06-16	Mr. Wang Wei	General Manager of Wulong County Landi Hydropower Co., Ltd.	
/vii/	2009-06-16	Mr. Huang Xiaohua	General Manager of Wulong County Yuxiang Hydropower Development Co., Ltd.	
/viii/	2009-06-16	Mr. Shihe	General Manager of Wulong County Yongxin Hydropower Development Co., Ltd.	
/ix/	2009-06-17	Mr. Yongzhou	Local resident	- Local stakeholder comments - Environmental Impact
/x/	2009-06-17	Mr. Yi Shiyong	Local resident	- Job opportunities

Place: Wanzhou District, Chongqing City, P.R.China

	Date	Name	Organization	Topic
/xi/	2009-06-19	Mr. Yin Xianyun	General Manager of Chongqing Wanzhou Electric Development Co., Ltd.	- Project background - Local hydropower development - Investment barriers - Project finance - Environmental impact
/xii/	2009-06-19	Ms. Long Yu	Vice General Manager of Chongqing Wanzhou Electric Development Co., Ltd.	- Sustainable development
/xiii/	2009-06-19	Mr. Zhou Liyong	General Manager of Xianfeng	- Project management - Monitoring issues
/xiv/	2009-06-19	Mr. Xiang Lijun	Local resident	- Local stakeholder comments - Environmental Impact - Job opportunities

Place: Ya'an County, Sichuan Province, P.R.China

	Date	Name	Organization	Topic
/xv/	2009-06-19	Mr. Mou Wei	Board Director of Mayihe Hydroelectric Plant	- Project background - Local hydropower development - Investment barriers - Project finance
/xvi/	2009-06-19	Mr. Zeng Yi	General Manager of Gaoqiaohe Hydroelectric Plant	- Environmental impact - Sustainable development
/xvii/	2009-06-19	Mr. Mao Jiong	Legal Representative of Daihuanggou Hydroelectric Plant	- Project management - Monitoring issues
/xviii/	2009-06-21	Mr. Liu Dehong	Plant Manager of Qingshuihe Stage I Hydroelectric Plant	

Place: Xingyi City, Guizhou Province, P.R.China

	Date	Name	Organization	Topic
/xix/	2009-06-23	Mr. Yang Xiubing	General Manager of Xingyi City Puti Power Co., Ltd.	- Project background - Local hydropower development - Investment barriers
/xx/	2009-06-23	Mr. Zhang Guangcan	Plant Manager of Xingyi City Puti Power Co., Ltd.	- Project finance - Environmental impact - Sustainable development - Project management - Monitoring issues

**Place: Zhenyuan County/Lincang County/Yingjiang County/Fugong County,
Yunnan Province, P.R.China**

	Date	Name	Organization	Topic
/xxi/	2009-07-07	Mr. Zhang Jizhong	General Manager of Xiaojiehe Hydropower Co., Ltd.	- Project background - Local hydropower development - Investment barriers
/xxii/	2009-07-09	Mr. Huang Fengkun	Technical Director of Lincang Runda Hydropower Co., Ltd.	- Project finance - Environmental impact - Sustainable development - Project management
/xxiii/	2009-07-12	Mr. Wu Shiyuan	Manager of Yingjiang County Tianchao Hydropower Co., Ltd.	- Monitoring issues
/xxiv/	2009-07-14	Mr. Wu Xiangquan	Vice General Manager of Yunnan Fugong Huatai Electricity Development Co., Ltd.	

Main changes between the version submitted for validation on 10th June 2009 and the final version submitted for registration:

- The VCS PD is revised according to the CAR and CL identified in the TÜV Rheinland's Draft Validation Report to the Project;
- All the retrofitted projects (i.e. Project No. 17, 19 and 89) were withdrawn by the project participants during validation process. The total project amount is changed from 98 to 95.

2.3 Resolution of Any Material Discrepancy

The objective of this phase of the validation is to resolve any outstanding issues which need be clarified prior to TÜV Rheinland's positive conclusion on the project design. In order to ensure transparency a validation protocol is customised for the project. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

The validation protocol consists of three tables. The different columns in these tables are described in the figure below. The completed validation protocol for this project is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of VCS criteria or where a risk to the fulfilment of project objectives is identified.

Corrective action requests (CAR) are issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) VCS and/or methodology specific requirements have not been met; or
- iii) there is a risk that the project would not be accepted as a VCS project or that emission reductions will not be certified.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

Validation Protocol Table 1: Requirement checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the large-scale VCS PD template, in effect as of: 19 November 2007. Each section is then further sub-divided.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a corrective action request (CAR) due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the validation team has identified a need for further clarification.

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

Figure 1. Validation protocol tables

3 VALIDATION FINDINGS

3.1 Project Participants

The VCS Project Description/1/ is based on the currently valid VCS PD template version³ of 19th November 2007 and is confirmed to be completed in accordance with the relevant requirements as stipulated in VCS 2007.1/2/.

Nearly all the grouped projects are developed by independent private entities, the information of which has been comprehensively provided in Section 1.15 of the VCS PD/1/ and the business licences have been verified during site assessment. According to the Emission Reduction Purchasing Agreement⁴, the VCU buyer is Swiss Carbon Value Ltd. The roles and responsibilities of the project participants have been sufficiently described in the central information system in Section 3.4 of the VCS PD.

3.2 Project Grouping

According to the Section 1.4 and Section 1.5 of the revised VCS PD/1/, the Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou provinces, P.R.China is a grouped project under VCS 2007.1/2/, and it consists of four sub-groups (i.e. 9 projects are located in Yunnan Province, 67 in Chongqing City, 13 in Sichuan Province and 6 in Guizhou Province).

The validation team has independently carried out a sampling approach for the Grouped Project according to the Sampling Guidance, Clause A.2.4.6.4. The sampling method is a risk-based approach, which are demonstrated in the table below:

Item	Justified by Validation team
GHG sources	The GHG sources for all grouped projects are considered similar since all are completely hydropower. • Project Activity / Project Emission Most of the grouped projects are run-of-river hydropower projects, no project emissions should be considered as per AMS-I.D (version 13)/7/. Only 2 projects involve construction of reservoirs, and the power density of these two projects are both greater than 10 W/m², the GHG emissions from the reservoirs need not be considered. • Baseline Emissions The baseline scenario for the grouped project has been justified as CCPG and SCPG according to the applied methodology, where the GHG sources are mainly CO₂. The sampling has considered the distinctions of hydro resources development and investment

³ <http://www.v-c-s.org/docs/VCS%20PD.doc>

⁴ See details in Annex to Table 2.

	environment among Chongqing City, Sichuan, Guizhou and Yunnan Provinces. Therefore, the provincial boundary is considered as a key sampling criteria for the Grouped Project.
<i>GHG sinks</i>	The GHG sinks are considered similar since all the grouped projects are hydropower projects.
<i>GHG reservoirs</i>	N/A
<i>GHG types</i>	• Project Activity No GHG sources should be considered for all grouped projects. • Baseline The baseline scenario is Central China Power Grid and China Southern Power Grid, of which the GHG emissions are mainly CO₂. Please see details in Section 3.4.2 of this report.
<i>Organizations, facilities, sites</i>	According to the project list in the VCS PD, the project owners are independent private entity. The project facility types are mainly run-of-river hydropower projects and the main generating technology are domestically produced. The provincial boundary, at which the project site is located, has been considered for sampling.
<i>GHG projects</i>	• The grouped projects are mostly run-of-river hydropower projects. Only 2 projects involve new dams constructions. • The installed capacity has been considered by classifications of two groups with installed capacity $\leq 5\text{MW}$ and $>5\text{MW}$. • All grouped projects are small hydropower projects (SHP), of which the environmental impacts are considered minor according to EIA study.
<i>GHG processes</i>	The GHG processes for all grouped projects are similar since all the grouped projects are hydropower projects, which generate electricity by utilizing zero-emission renewable hydro resources.

By considering the project amount within different sub-groups and classified scale of the project activity (i.e. installed capacity $\leq 5\text{MW}$ or $> 5\text{MW}$), the final sampling plan is demonstrated below:

Grid	Province	Scale	No. of Projects	No. of Samples Required
Central China Power Grid (CCPG)	Sichuan	$\leq 5\text{MW}$	8	2
		$> 5\text{MW}$	5	2
	Chongqing	$\leq 5\text{MW}$	68	8
		$> 5\text{MW}$	1	1
Southern China Power Grid (SCPG)	Yunnan	$\leq 5\text{MW}$	6	2
		$> 5\text{MW}$	4	2
	Guizhou	$\leq 5\text{MW}$	3	1

	> 5MW	3	1
Total No. of Projects		98⁵	N/A
Total No. of Samples Required		N/A	19

By evaluating the potential risks (i.e. estimated emission reductions, financial return rate and project types) underlying the grouped project activities, the validation team finally determined the 19 sampling projects from the Grouped Project and carried out a complete validation of these 19 sampling projects, of which the validation findings have been described in Appendix A of this report.

3.3 Project Design

The proposed Grouped Project involves the installation and operation of 98 run-of-river hydropower plants in Chongqing, Sichuan, Guizhou and Yunnan Provinces, People's Republic of China. The geographical coordinates of each grouped project have been completely provided in Section 1.5 the revised VCS PD of 13th October 2009/1/ and are checked to be valid.

Most of the grouped projects are developed as run-of-river hydropower projects, consisting of intake structure, the water conveyance system and the power house. The total installed capacity of each grouped project is below 15MW. All the main generating facilities, including water turbine generators and plant transformers, are domestically-produced and state-of-art. The major technical specifications of the water turbine generators have been comprehensively presented in the Section 1.9, Table 1-3 of the VCS PD/1/. Furthermore, the power generating technology, the name plates of the main generating facilities and the electricity delivering systems have been verified during site assessment for the sampling projects. Therefore, the technical information has been checked to be consistently provided in the VCS PD of 13th October 2009/1/.

The expected operational lifetime of each grouped project has been provided in Annex 2 of the revised VCS PD/1/ and it has been confirmed to be presented according to the project designed documents (i.e. Preliminary Design Report or Feasibility Study Report) by checking the details for sampling projects⁶. According to the emission reductions calculation spreadsheet, the Grouped Project is expected to provide annual electricity of 470,996 MWh and 356,851 MWh to the CCPG and CSPG respectively over the first 10-year crediting period. According to the VCS PD, a renewable 10-year crediting period is selected, starting from 28th March 2006, which is the earliest crediting start date for hydropower projects under VCS 2007.1/2/. The annual GHG emission reduction of the Project is thus estimated to be 769,396 tCO₂e per year over the first 10-year crediting period by considering the baseline emission factors of CCPG and CSPG.

⁵ Since all the retrofitted projects (i.e. Project No. 17, 19 and 89) were withdrawn by the project participants during validation process, the total project amount is finally 95 projects within the Grouped Project.

⁶ See details in the Annex to Table 2.

All the grouped projects have been put into commercial operation and the project start date has been determined as the date of commencing trail run according to the Construction Accomplishment Acceptance Report, where a complete project implementation timeline has been demonstrated. Since the Construction Accomplishment Acceptance Report is a mandatory document including the experts' assessment opinion of local water conservancy authorities on the project construction activities, it is deemed to be third-party and credible evidence for validation. Since the commencing date of trail operation is the earliest date on which the electricity is delivered to the grid, it is reasonable to justify it as the project start date representing the date on which the project began removing GHG emissions within the Grid⁷. The validation team has reviewed the Construction Accomplishment Acceptance Report⁸ for the sampled projects and has verified that the project start date has been appropriately determined in the VCS PD and is after the date of 1st January 2002. Therefore, the validation team is able to confirm that the project start date of the Grouped Project complies with the requirement as stipulated in VCS 2007.1/2/.

Nearly all the grouped projects are developed by independent private entities, the information of which has been comprehensively provided in Section 1.15 of the VCS PD/1/. The proof of the title for the grouped projects has been checked to be valid by reviewing the project design & approval documents⁹ and business licences of the project owners during site assessment. The project participants have not claimed any environmental credits under other GHG programs according to the onsite interview with the project participants/i/-/viii/. It has also been confirmed by checking the "UNEP Risoe CDM/JI Pipeline Analysis and Database"¹⁰, October 1st 2009" that no project has been involved in CDM Program within the Grouped Project. By accessing in the the Gold Standard Registry System¹¹ and CCX Registered & Verified Offset Projects list¹², the validation team is able to confirm that none of the grouped projects has been registered as Gold Standard project or CCX projects. Therefore, the validation did not reveal any information that indicates that the grouped projects have been involved in any other GHG program.

The Grouped Project is considered to be contributed to sustainable development, by utilization of renewable hydro resources in local area for the generation of electricity that would be have been provided by business-as-usual fossil-fired power to meet the growing power demand within CCPG and CSPG. Besides, the Grouped Project has created considerable amount of permanent and temporary job opportunities for local residents according to onsite interview. In the rural area, the electricity generated from the project activity will be supplied to local people and avoid firewood combustion and thus protecting the forest in local region. In addition, local government will also benefit from the additional income tax for electricity sale of the project activity according to site interview with the project owners. It is thus concluded

⁷ The project start date is defined as the date on which the project began reducing or removing GHG emissions under VCS 2007.1.

⁸ The detailed references of each sampled project have been involved in the "Document Review List" in Annex to Table 2 of this report.

⁹ Please see detailed references list in "Annex to Table 2; Document Review List" of each sampled project.

¹⁰ <http://www.cdmpipeline.org/>, filtered with with "China" as host country, "Hydro" as technology type, and "Chongqing", "Sichuan", "Yunnan" and "Guizhou" as province.

¹¹ <https://gs1.apx.com/myModule/rpt/myrpt.asp?r=111>, Sorting "Country" as "China".

¹² <http://www.chicagoclimatex.com/offsets/projectReport.jsf>, Sorting "Location" as "China".

that the implementation of the project activity will help in achieving sustainable development in social, environmental and economic aspects for local community.

In summary, the validation team is able to confirm that the Grouped Project is eligible under VCS2007.1.

3.4 Baseline

3.4.1 Applicability of the selected methodology to the project activity

The Grouped Project is a grid-connected renewable electricity generation project activity (Category I.D) as per Appendix B of the Simplified Modalities and Procedures for Small-scale CDM Project Activities.

The Grouped Project applies the approved simplified baseline methodology for small-scale CDM project activities AMS-I.D (version 13)/7/ titled “Grid connected renewable electricity generation”, which is confirmed to be valid from 14 December 2007 to 30 July 2009 and the Requests for Registration can be submitted until 30 March 10 23:59 GMT ¹³. Therefore, the validation report can be issued before 30 March 2010 according to official website of VCS Association¹⁴. Its applicability has been checked by the validation team as the Project fulfils the following criteria:

- 1) The grouped projects are mostly green-field run-of-river hydropower project. Only 2 hydropower projects involve construction of reservoirs¹⁵, and the power density are both greater than 10W/m².
- 2) The maximum installed capacity within the grouped projects is 14MW, which is within the eligibility limit of 15MW for a small-scale CDM project activity.
- 3) The electricity generated from the Grouped Project will be supplied to: a). Chongqing City and Sichuan Provincial Grid, which belong to Central China Power Grid (CCPG); b). Guizhou and Yunnan Provincial Grid, which belong to a regional electricity grid China Southern Power Grid (CSPG) as confirmed in the *China DNA's Guidance on China Grid Baseline Emission Factors/18/*;

3.4.2 Project Boundary

The grid system boundary includes the physical site of the project activity and all the power plants connected to the Central China Power Grid (CCPG) or China Southern Power Grid (CSPG) respectively, which have been clearly delimited in the *China DNA's Guidance on China Grid Baseline Emission Factors/18/*.

The CCPG and CSPG is dominated by thermal power plants as per the *China Electrical Power Yearbook 2004~2007/12/*. Since the all the grouped project is a small-scale hydropower project with an installed capacity below 15MW, it is expected that renewable capacity additions will not have significant effects on the mix of the CCPG and CSPG during the project operation period.

¹³ <http://cdm.unfccc.int/methodologies/DB/GA1Z9QIWW2MFAX2GT0Y6IYNPGNH0S1/view.html>

¹⁴ <http://www.v-c-s.org/methodologies.html>

¹⁵ The power density of the Project No. 74 and 75 are calculated as 16 W/m² and 57 W/ m²

All the Grouped Project has been put into commercial operation during onsite assessment. Fossil fuels have been used for land excavation, foundation treatment and transportation of construction materials etc. However, these emissions, arising from power plant construction, fuel handling, need not be considered as leakage according to AMS-I.D (version 13)/7/. No fossil fuels consumptions have been observed for normal operation of the hydropower plant during onsite assessment.

Therefore, the identified boundary and the selected sinks and sources of greenhouse gases have been justified for the project activity in the VCS PD according to the applied methodology.

	<i>GHGs involved</i>	<i>Description</i>
<i>Baseline emissions</i>	<i>CO₂</i>	Main emission sources as the baseline is CCPG or CSPG respectively.
<i>Project emissions</i>	<i>Zero</i>	According to AMS-I.D (version 13)/7/, the project emission is considered to be zero because most of the grouped projects are run-of-river hydropower projects. The the power density of the 2 projects with reservoirs are both greater than 10 W/m ² . No fossil fuel consumptions have been identified for operation of the hydropower plant during site assessment. The internal electricity consumptions will be imported from the Grid, where the internal consumptions will be deducted from the generating output.
<i>Leakage</i>	<i>Zero</i>	Emissions, arising due to activities such as power plant construction, fuel handling (extraction, processing, and transport), are not required to be considered as leakage according to AMS-I.D Version 13/7/.

3.4.3 Baseline Identification

According to the VCS PD, the baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO₂e/kWh) calculated in a transparent and conservative manner as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM). The weighting is set to respectively 50% and 50%, the default values stipulated by “*Tool to calculate the emission factor for an electricity system*” (version 01.1)/9/ for

hydropower projects. No other baseline scenarios were evaluated as this is not required according to AMS-I.D (version 13).

The ex-ante estimation method was selected for the OM and BM emission factors of CCPG and CSPG based on the information obtained from *China Electric Power Yearbook 2003~2007/11/* and *China Energy Statistical Yearbook 2005~2007/12/*, which are the most recent information available at the time of VCS PD submission for validation.

<i>The approved baseline methodology applicable to the project</i> <i>explicit criteria</i> <i>implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE calculations)</i>	☒ Yes ☐ No	As per AMS-I.D Version 13/7/, please see details in Section 3.4.1 of this report.
<i>PD includes all assumptions and data used by project participants</i>	☒ Yes ☐ No	The PD includes all assumptions and data according to AMS-I.D Version 13/7/ and "Tool to calculate the emission factor for an electricity system" (version 01.1) /9/.
<i>All the references and documents used are relevant for establishing the baseline scenario</i>	☒ Yes ☐ No	<i>China Electric Power Yearbook 2003~2007</i> , <i>China Energy Statistical Yearbook 2005~2007/11//12/</i> and <i>China DNA's 2008 Baseline Emission Factors for Regional Power Grids in China/18/</i> are relevant for establishing the baseline scenario according to AMS-I.D (version 13) /7/.
<i>All the references and documents used are correctly quoted and conservatively interpreted in the PD</i>	☒ Yes ☐ No	All the references and documents are confirmed to be correctly quoted and conservatively interpreted in the Section 4 and Annex 1 of the PD.
<i>All relevant policies / regulations considered are listed in the PD</i>	☒ Yes ☐ No	All relevant policies / regulations considered are confirmed to be listed in the PD/1/ as per AMS-I.D Version 13/7/ and <i>China DNA's 2008 Baseline Emission Factors for Regional Power Grids in China/19/</i> .
<i>Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity</i>	☐ Yes ☒ No	No other baseline scenarios need to be considered according to AMS-I.D (version 13).
<i>The baseline scenario selection is appropriate and determined</i>	☒ Yes ☐ No	As per AMS-I.D Version 13, please see details in Section 3.4.3 of this

<i>according to the methodology</i>		report.
<i>The approved methodology used is applicable to the identified baseline scenario</i>	☒ Yes ☐ No	As per AMS-I.D Version 13, please see details in Section 3.4.1 of this report.

3.4.4 Additionality

According to the VCS PD/1/, the additionality of the project is demonstrated by applying the *Attachment A to the Appendix B of the Simplified Modalities and Procedures for Small-scale CDM Project Activities*^{16/8/}. The barrier analysis was adopted to demonstrate the Grouped Project faces prohibitive barriers, which don't equally prevent the implementation of large-scale hydropower plants and coal-fired power plants in China.

As demonstrated in the revised PD/1/, the barrier analysis consists of three parts: A. General barriers, B. Case studies and C. Project specific IRR analysis and the validation of these three parts have been summarized in the context below.

A. General Barriers

I. Technical Barriers

I.1 Electricity supply limitations

It was confirmed that the grouped projects are defined as small-scale hydropower projects, whereas the largest project activity within the Grouped Project is a 14 MW plant. Since all the grouped project activities are run-of-river hydropower plant without regulating capacity, part of the water available is spilled without being used for power generation in rainy season. Furthermore, the grid company usually restricts the electricity generation from the grouped project activities due to the transmission constrains in rural and remote region, where the constructions of transmission facilities were less-developed.

It was also reported in "*Incentive policy framework design for small hydropower in China*" (2003)/22/ and "*The current situation and problems of small hydro power development in China*" (2004)" /23/ that the actual delivery generation was 30% to 50% below the designed level and the annual average operational hour of small hydropower plant in China was only 3,500h in 2004.

II. Regulatory Barriers

II.1 Lack of Supporting Policies

According to "*Provisional Administrative Measures on Pricing and Cost Sharing for Renewable Energy Power Generation*" /21/, the renewable energy including wind farm, photovoltaic and biomass generation enjoy the tariff protection policy while the

¹⁶ http://cdm.unfccc.int/methodologies/SSCmethodologies/AppB_SSC_AttachmentA.pdf

hydropower are excluded from this “tariff protection policy” and the prevailing regulations on hydropower tariff are still in effect.

II.2 Tariff Related Barriers

It was reported in the “*The Trend of Small Hydropower Development in China*”^{19/} that the tariff for small hydropower project (SHP) is generally much lower than the local fossil generation. The validation team has cross-checked with the “*Electricity Tariff Supervising Report 2007-2008*”¹⁷¹⁸, the average tariff level of hydropower in the whole country is verified as 0.244 CNY/kWh and 0.266 CNY/kWh in 2007 and 2008 respectively, while the average tariff level of fossil-fired power plant is verified as 0.346 CNY/kWh and 0.355 CNY/kWh in 2007 and 2008 respectively. Therefore, it was confirmed that the hydropower tariff was 0.09 CNY/kWh lower than the fossil generation tariff in recent years.

According to the average power tariff figure^{24/} in the revised PD, the grouped projects are located in Chongqing, Sichuan, Yunnan and Guizhou Provinces, where the average power tariff was much lower than other provinces. Furthermore, the validation team has reviewed the electricity receipts and power purchase agreements of the sampled projects, which indicated that the highest tariff of the grouped projects was 0.25 CNY/kWh¹⁹ and the lowest tariff was 0.125 CNY/kWh²⁰.

III. Institutional Barriers

III.2 Barriers Imposed by Bureaucratic System on Small Project Activity

The validation team has reviewed the “*Hydropower in China*”^{24/}, which demonstrates that the small hydropower project would face difficulties to get the attention of local authorities due to its small scale. The surplus electricity generated by less expensive small hydropower during the rainy season would be refused for connection due to its unstable characteristics.

III.2 Barriers to Private Investors and Developers

The validation team has reviewed the “*Hydropower in China*”^{24/}, which demonstrates that the private investors would face barriers to acquire access to essential data for hydropower development since these data were not public available.

IV. Financial Barriers

IV.1 The electricity price is not acceptable in remote rural areas

It was confirmed during site assessment that all the sampled projects were located in remote rural area, where there were few industries and local economy was under-developed. The electricity consumption was mainly by household. The consume

¹⁷ http://www.serc.gov.cn/zwgk/jggg/200809/t20080912_10008.htm

¹⁸ http://www.serc.gov.cn/zwgk/jggg/200910/t20091014_12181.htm

¹⁹ See details in Annex to Table 2, Project 21: Chongqing Wanzhou Xianfeng Hydroelectric Plant.

²⁰ See details in Annex to Table 2: Project 78: Mayihe Hydroelectric Plant

ability of local residents was very limited and they could not afford to the same electricity price level as the urban residents.

IV.2 Constrains by rural poverty

It was confirmed by onsite inspection that all the sampled project sites were located at rural area where the infrastructure construction was very poor. The entrance road for each sampled project site was built by the project owner and has brought much convenience for local villagers as confirmed by onsite interview/ix/x/xiv/. The local residents around the project site were living at very poor conditions and the local governmental financial sources were very limited. It was confirmed during onsite assessment that the grouped project activities have brought considerable job opportunities for local residents and contributed to local poverty alleviation by providing sustainable electricity and additional taxes to local counties.

IV.3 Increasing capital costs

It was confirmed by onsite interview/i/ii/iii/iv/ that the project owners bore the financial stresses at the beginning of the project implementation since it was very difficult to get loan from the local bank due to the project's lower return rates. According to the *"Rural Electrification in China 1950-2004 – Historical Processes and Key Driving Forces"*/25/ numerous bank loans have not been repaid in full and most of the small hydropower projects had tariff rates below its long-term cost. According to the survey/27/ by Wulong Small Hydropower Association, many small hydropower project owners were not able to repay the loan from the bank due to the poor economical operating performances.

IV.4 High unit investment and escalating O&M costs

It was confirmed that the price indices and labour cost for construction of hydropower engineering were keeping increasing since the year of 2001²¹. It was clearly described in the *"Incentive policy framework design for small hydropower in China"* (2003)^{/22/} that the average unit investment of Chinese SHP station is around 6000CNY/kW-8000 CNY/kW. The supporting documents/22//27/ have been checked to be valid and the validation team is able to confirm that the unit investment cost and O&M cost of small hydropower project was keeping increasing and this increasing trend would not substantially change under the context of the project activity.

V. Other Barriers

V.1 Environment and climate change

It was confirmed by site interview that the grouped projects provided the local residents with sufficient electricity supply and the local residents were able to use electricity appliances for cooking, instead of cutting trees for firewood. This situation was consistent with relevant descriptions of fuel substitutions in *Rural Electrification in China 1950-2004 – Historical Processes and Key Driving Forces*/25/. It was reported in *"Climate and Environment in China"*/26/ and *"The Rural Hydropower Capacity – Deductions and Policy Orientation"*/32/ that the climate change has

²¹ <http://www.hydrocost.org.cn/price/priceIndex.jsp>

negative impacts the hydrological patterns and the accelerating changes of hydrological conditions were the reasons for big discrepancies between the designed values and actual operating data. It was also noted that the snowstorm from January 2008 has made significant damages to rural hydropower infrastructure/33/.

Furthermore, the validation team has confirmed that all the sampled projects are run-of-river hydropower projects commencing construction after the year of 2002 according to the Construction Accomplishment Acceptance Reports (see details in Annex to Table 2). As also confirmed by onsite assessment, all the plant sites were located at rural and remote region of Chongqing City, Sichuan Province, Guizhou Province and Yunnan Province. The ownerships for all project owners were private by reviewing the business licenses. The financial operating performances have been assessed by reviewing the electricity receipts, which indicated the only cash inflow from electricity delivering to the local grid. The operating and maintenance cost has also been interviewed/i/ during onsite assessment, which confirms that all the sampled projects were operating with difficult financial situations. All the evidence during document review and onsite assessment is consistent with the descriptions quoted from the independent and expertized literatures.

In summary, the validation team has reviewed the referenced literatures in the PD and was able to confirm that the demonstrations were quoted from independent sources and were applicable to the Grouped Project. It was realistic that the grouped projects would face abovementioned barriers from its implementation under the context of the grouped project activities. The existence of the barriers has also been demonstrated by “ex-post” IRR analysis” for each sampled project and the prohibitive barriers for specific project activity have been identified in the revised PD.

B. Case Studies

According to the revised PD/1/, some case studies, which were located within the same area and developed with similar conditions in the year of 2002, are conducted for the Grouped Project. According to investigations on the economical performances of the 64 rural small hydropower projects in the year of 2002 /32/, the average generation cost was 0.05 CNY/kWh higher than below the average tariff (i.e. 0.25 CNY/kWh). Most of the investigated projects were in losses due to electricity delivering limitations and unacceptable lower tariff level. It was also demonstrated/23/ that the small hydropower projects in Guizhou Province bears unacceptable tariff between 0.12 CNY/kWh and 0.18 CNY/kWh, which was much below the generation cost. Moreover, the actual operational hour was averagely 3500h due to electricity delivery restrictions, which was less than two thirds of the designed value. The case studies have shown that many similar hydropower projects faced prohibitive barriers which made the small hydropower projects financial unattractive for the potential investors.

C. Project Specific IRR Analysis

According to the revised PD and IRR calculation sheet/1//5/, the financial analysis was conducted to prove the existence of barriers within the Grouped Project. The validation team has checked the IRR spread sheets and it was confirmed that the major assumptions are based on the project design documents (i.e. FSR or PDR) for the grouped projects, where the investment cost, tariff and on-grid output are based on the actual values. For details, please refer to Annex to Table 2 of this report.

The calculated project IRR was compared with the benchmark IRR (i.e. 10% after tax) for small hydropower project in China as stipulated in "Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)"²²/13/, which has been confirmed to be valid since 1st July 1995²² and remains valid according to "List of Current Effective Technical Standards of Water Resources"²³²⁴ issued by Ministry of Water Resources on 31st December 2008. Since the largest installed capacity of the Grouped Project is 14 MW which is within the eligibility of 25MW, the validation team could thus confirm that the benchmark is applicable for the Grouped Project.

The findings on validation of "Ex-post Financial Analysis" have been comprehensively demonstrated in "Annex to Table 2" of this report. It has been validated that project IRR of the 19 sampled projects are below the benchmark, which are listed in the table below. Therefore, the validation team is able to confirm that the mentioned barriers are real.

Ex-post²⁵ Project IRR of Sampled Projects

No.	Project Title	Project IRR (after tax)
21	Chongqing Wanzhou Xianfeng Hydroelectric Plant	4.55%
55	Canglong Hydroelectric Plant	3.76%
57	Heixigou Hydroelectric Plant	6.84%
59	Muzonghe Stage IV Hydroelectric Plant	9.75%
63	Songshigou Hydroelectric Plant	7.41%
64	Banqiao Stage III Hydroelectric Plant	4.77%
67	Baiguo Hydroelectric Plant	7.09%
68	Longqiao Hydroelectric Plant	6.40%
69	Baiyang Hydroelectric Plant	2.88%
72	Dahegou Hydroelectric Plant	5.62%
75	Puti 2 nd Stage Hydroelectric Plant	8.52%
78	Mayihe Hydroelectric Plant	8.09%
82	Qingshuihe Stage I Hydroelectric Plant	5.68%
85	Daihuanggou Hydroelectric Plant	7.56%
86	Gaoqiaohe Hydroelectric Plant	9.22%

²² <http://www.cws.net.cn/guifan/bz/sl16-95/>

²³ <http://www.lnsky.com/science/200901.doc>

²⁴ http://www.hwcc.com.cn/file/38992_01.xls

²⁵ "Ex-post" mainly refer to the adoption of the actual investment cost, tariff and on-grid output while the major assumptions are based on the project design documents (i.e. FSR or PDR) for the grouped projects.

89	Dashi Stage I Hydroelectric Project ²⁶	9.74%
94	Zhenyuan County Xiaojiehe Hydropower Station	2.12%
96	Yingjiang Husa River 5th Stage Hydropower Plant	7.36%
98	Fugong County Lishadi Hydropower Plant Project	4.27%

Furthermore, the prohibitive barriers for each sampled project have been justified with supporting evidence in Annex 4 of the revised PD.

Specific Barriers for Sampled Projects

No.	Project Title	Prohibitive Barriers
21	Chongqing Wanzhou Xianfeng Hydroelectric Plant	II.2
55	Canglong Hydroelectric Plant	I.1, II.2, IV.4
57	Heixigou Hydroelectric Plant	I.1, II.2, IV.4
59	Muzonghe Stage IV Hydroelectric Plant	II.2, IV.4
63	Songshigou Hydroelectric Plant	I.1, IV.4
64	Banqiao Stage III Hydroelectric Plant	II.2
67	Baiguo Hydroelectric Plant	II.2, IV.4
68	Longqiao Hydroelectric Plant	I.1
69	Baiyang Hydroelectric Plant	I.1, IV.4
72	Dahegou Hydroelectric Plant	I.1, II.2, IV.4
75	Puti 2 nd Stage Hydroelectric Plant	IV.4
78	Mayihe Hydroelectric Plant	I.1, II.2
82	Qingshuihe Stage I Hydroelectric Plant	IV.4
85	Daihuanggou Hydroelectric Plant	I.1
86	Gaoqiaohe Hydroelectric Plant	IV.4
94	Zhenyuan County Xiaojiehe Hydropower Station	I.1, II.2
96	Yingjiang Husa River 5th Stage Hydropower Plant	I.1
98	Fugong County Lishadi Hydropower Plant Project	I.1

The validation team is able to confirm that the mentioned barriers existed at the time of commencing project implementation and it would prevent the implementation of each sampled project activity since the project owners would face prohibitive barriers which prevent the project from being financial attractive. However, these barriers are not applicable for coal-fired power projects, which have less unit investment cost, much higher tariff and more stable operational hour as compared with small hydropower projects.

²⁶ Project No. 89 was withdrawn by the project developer, please see details in Annex to Table 2 of this report.

Therefore, the validation team is able to confirm that the barriers are real and the barriers prevent the implementation of the Grouped Project but not implementation of the coal-fired power plants, which were dominated in CCPG and CSPG during the year of 2002-2006.

3.5 Monitoring

The Grouped Project applies the approved monitoring methodology, AMS-I.D “Grid connected renewable electricity generation” version 13/7/. The monitoring plan, as described in Section 3.4 of the revised PD, is confirmed to be documented in line with the requirements for hydropower projects according to AMS-I.D Version 13.

A central information system has been established for the Grouped Project and comprehensively described in Section 3.4 of the VCS PD/1/. The monitoring organization structure, quality assurance process and monitoring roles and responsibility have been clearly identified in Figure 3-1, Figure 3-2 and Figure 3-3. The central GHG information system has integrated four functional units: projects owners, Intermediary companies, South Pole’s China team and Global Quality Control and Technical Support Team, where the coordination effectiveness has been observed during site assessment.

According to the PD/1/, South Pole is responsible for gathering and managing individual projects’ information and their monitoring relevant documents by using their central information control tool (i.e. PMT software). Each project owner sends monthly monitoring information and associated evidences to South Pole Carbon Asset Management Ltd. South Pole checks all documents and compiles the central monitoring report. The processes for collecting, processing, consolidating and reporting GHG data and information have been clearly described in Table 3-2.

It has been verified that the electricity exported to and imported from the CSPG and CCPG will be monitored continually and recorded on monthly basis by the project owner. In addition, the data will be cross-checked with the electricity sales receipts.

3.5.1 Parameters determined ex-ante

The baseline grid emission factor will be determined *ex-ante*, based on the most recent information, and is calculated as a combined margin, consisting of the weighted average of the OM and BM emission coefficients. This combined margin emission coefficient will remain fixed during the first 10-year crediting period.

3.5.2 Parameters monitored ex-post

The main data that needs to be monitored ex-post is the amount of the electricity delivered to the CCPG and CSPG, which will be continuously monitored through gateway meters specified in the Power Purchase Agreement for each grouped project.

The project owner of each grouped project will keep copies of the electricity sales records including the electricity invoices and receipts, which have been verified by onsite assessment. Receipts from electricity sales will be obtained for double checking.

3.5.3 Management system and quality assurance

The quality assurance and quality control procedure has been clearly described in the revised PD. South Pole's internal quality has been substantiated in Figure 3-2 and it can further ensure the accuracy of the GHG information data.

According to the revised PD, the monitoring data and records will be archived in electronic documents and paper documents. The project owners will keep the copies of electricity generation records and sales receipts. Calibration of Meters & Metering should be implemented periodically according to national electric industry standards and rules. After calibrated by qualified entity, the electricity metering equipment is sealed and stamped, which has been verified during onsite assessment.

It was confirmed during site assessment that all the staff involved in the grouped projects has received periodic training on operation and maintenance of the hydropower plant. The training records have been reviewed by the validation team to be valid.

In summary, the validation team is able to confirm that the project participant is competent to implement the monitoring plan under the context of the project activity.

3.6 Calculation of GHG Emission

Most of the grouped projects are new run-of-river hydropower project and only 2 projects involve construction of new reservoirs. Since the power density of the 2 projects are greater than 10W/m^2 , the project emission is zero under AMS-I.D. Version 13. Therefore, the project emission of the Grouped Project is zero under AMS-I.D. version 13 ($\text{PEy}=0$).

The grouped projects are newly-built, with no transferred from another activity or to another activity. The main generating equipment including water turbine generators are newly purchased, and the name plates have been verified during site assessment. Therefore, no leakage needs to be considered for the project activity according to the methodology. ($\text{Ly}=0$).

The baseline emission factor for the project, using the combined margin (CM) approach, is fixed *ex-ante* during the first 7-year crediting period according. The default weights for the proposed project of 50% OM and 50% BM have been selected according to *Tool to calculate the emission factor for an electricity system (version 01.1)/9/*. For the calculation of OM emission factor, simple OM emission factor calculation method is chosen because low cost/must run projects constitute less than

50% of the total grid generation and data is not available for applying the dispatch data analysis. The average emission factor for the grid for each fuel type is calculated *ex-ante* based on a 3-year full generation-weighted average of the data available from 2004 – 2006 derived from China Electric Power Yearbook and China Energy Statistics Yearbook 2005~2007/11//12/, which are confirmed to be the most recent information at the time of VCS PD submission for validation. Because plant specific fuel consumption and electricity generation data is not publicly available in China, a deviation of the baseline methodology of AM0005 (later replaced by ACM0002) approved by the EB (as detailed in the VCS PD) is adopted for using most recent emission data published by the DNA of P.R. China on 18th July 2008/18/.

According to the VCS PD/1/, the OM and BM of CCPG is calculated as 1.2783tCO₂e/WMh and 0.6687tCO₂e/WMh respectively. The combined margin (CM) of the project is thus calculated as 0.9735tCO₂e/WMh. Considering the total on-grid output of 470,996 MWh from the grouped projects connected with CCPG, the emission reductions, which equals to the baseline emissions, are thus calculated as 458,514.8 tCO₂e annually.

According to the VCS PD/1/, the OM and BM of CSPG is calculated as 1.0608 tCO₂e/WMh and 0.6816 tCO₂e/WMh respectively. The combined margin (CM) of the project is thus calculated as 0.87118 tCO₂e/WMh. Considering the total on-grid output of 356,851 MWh from the grouped projects connected with CSPG, the emission reductions, which equals to the baseline emissions, are thus calculated as 301881.8 tCO₂e annually.

Therefore, the total emission reductions of the Grouped Project is estimated as 769396 tCO₂e annually.

In summary, the GHG emissions calculations are transparently documented and appropriate assumptions regarding expected amount of electricity generated have been used to forecast emission reductions. A conservative approach has been adopted in both the prediction of baseline emissions and project emissions.

<i>All assumptions made for estimating GHG are listed in the PD</i>	☒ Yes ☐ No	All the assumptions made for estimating GHG have been confirmed to be listed in the PD Section 4.1. The main assumptions are in line with 2008 <i>Baseline Emission Factors for Regional Power Grids in China/18/</i> , which is published on China DNA's official website since 18 th July 2008.
<i>All data used by project participants are listed in the PD</i>	☒ Yes ☐ No	All data used by the project participants have been confirmed to be listed according to the <i>Tool to calculate the emission factor for an electricity system (version 01.1/9/)</i> and relevant China DNA's Guidance.

<i>Their references and sources are also listed in the PD</i>	☒ Yes ☐ No	The references and sources have been confirmed to be listed in the PD Section 4.1 and Annex 1 Baseline Information.
<i>Formulas, parameters, values are complete, accurate, transparent and conservative</i>	☒ Yes ☐ No	Formulas, parameters, values have been confirmed to be completely, accurately, transparently and conservatively documented in the PD Section 4.1 and Annex 1 Baseline Information according to the <i>Tool to calculate the emission factor for an electricity system (version 01.1)</i> and relevant China DNA's Guidance.
<i>All the references and documents used are correctly quoted and conservatively interpreted in the PD</i>	☒ Yes ☐ No	All the references and documents used have been correctly quoted and conservatively interpreted in the PD Section 4.1 and Annex 1 Baseline Information according to the <i>Tool to calculate the emission factor for an electricity system (version 01.1)</i> and relevant China DNA's Guidance.
<i>Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions</i>	☒ Yes ☐ No	The methodology (i.e. AMS-I.D Version 13) has been correctly applied to calculate project emissions, baseline emissions leakage emissions and emission reductions. Please also see validation details in <i>Section 3.6</i> of this report.
<i>All the emissions of baseline emissions can be replicated using information provided in the PD</i>	☒ Yes ☐ No	All the emissions of baseline emissions can be replicated by multiplying the annual on-grid output by the CM emission factors of CSPG and CCPG respectively.

3.7 Environmental Impacts

The environmental impact of the Grouped Project has been have been reported in Section 5 of the PD. The environmental impacts of the project were sufficiently assessed by means of an Environmental Impact Assessment (EIA) Study. The EIA accomplishment and approval information of each grouped project has been comprehensively listed in Annex 3 of the revised PD and was checked to be valid.

It was confirmed that most of the grouped projects are below 5MW (i.e. 83 projects) and the maximum intalled capacity within the grouped projects is 14MW. It has also been confirmed by onsite inspction that the grouped projects are newly-built run-of-river hydropower projects. Since the Grouped Project does not involve constructions

of large regulating reservoirs, the environmental impacts are insignificant. No resettlement has been observed during onsite inspection of the sampling projects.

It has been confirmed by onsite assessment that the Grouped Project is located at rural area of less-developed counties in southwest China. According to onsite interview with local governmental authorities, there are no indanger fishes or other other aquatic species. Therefore, the negative impacts on the ecosystem and biodiversity are considered to be insignificant. Furthermore, the negative impacts of the waste water, noise and air pollution emerging from project construction were alleviated through mitigation measures as confirmed in the EIA report. No significant environmental impacts were identified during the onsite assessment.

Therefore, the validation team is able to confirm that the EIA has been conducted in accordance with the relevant Chinese Environmental Regulations/19/ and the environmental impact of the Grouped Project is insignificant.

3.8 Comments by Stakeholders

According to the PD, local stakeholders were invited to provide comments during environment impact assessment process, which is mandatory according to the Chinese Environment Impact Assessment Law/19/.

The processes by which comments from local stakeholders have been invited and compiled, has been described within Section 6 of the PD as well as EIA report. Furthermore, representatives from the local community/i//ii//ix//x//xiv/ were interviewed during onsite assessment. In general, the interviewees show adequate understanding of the nature of the project and agreed that the project would benefit the environment, society and economic development. The response is overall supportive.

4 VALIDATION CONCLUSION

The validation team of TÜV Rheinland Japan Ltd. (TÜV Rheinland) has performed a validation of the “Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou Provinces, P.R.China” on the basis of Voluntary Carbon Standard (VCS) 2007.1 as well as criteria given to provide for consistent project operations, monitoring and reporting. The validation report and the validation protocol are summarizing the findings of the validation.

The review of the project design documentation and the subsequent follow-up interviews have provided DOE with sufficient evidence to determine the fulfillment of stated criteria.

The Validation was executed in the following steps so far:

- Desk review of preliminary VCS PD (Version 01, 10th June 2009)
- On-site visit with stakeholder interviews (14th to 24th June, 2009 and 5th July to 17th July 2009)
- Issue of checklist with corrective action requests (CARs) and clarification requests (CLs) and the draft validation report & protocol

The project applies approved baseline and monitoring methodology AMS-I.D. Grid connected renewable electricity generation (Version 13), which is approved CDM methodology.

And also the project applies the tools as follows:

- Tool to calculate the emission factor for an electricity system (Version 01.1)

The total emission reductions from the project are estimated to be on the average 769,396 tCO₂e per year over the first 10-year crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

Adequate monitoring procedures have been implemented according to the monitoring methodology AMS-I.D. Version 13.

The project proponent has resolved all Corrective Action Requests and Clarification Requests as stated in the Validation Report and the Validation Protocol, which has resulted in a revision of the PD. In summary, it is validation team's opinion that the Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou Provinces, P.R.China, as described in the VCS PD of October 13th, 2009, meets all relevant criteria as stated in VCS 2007.1 and correctly applies the baseline and monitoring methodology AMS.I.D (version 13). TÜV Rheinland thus requests the registration of the Project as a VCS Project.

Appendix A

VCS VALIDATION PROTOCOL

Grouped Hydropower Plants in Chongqing, Yunnan, Sichuan and Guizhou Provinces, P.R.China

REPORT NO. 01 996 9105053287

Table 1 Validation Requirements

(Based on VCS 2007.1, VCS 2007.1 Program Guidance and § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB44)

Checklist question	Ref.	MoV ²⁷	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1. VCS Project Description Document (VVM E.3)					
1.1. Is the VCS PD presented for validation based on the latest template available at the VCS website? <i>Indicate Yes / No answer and describe all inconsistencies in the Tables 2 and 3 accordingly.</i>	/1/ /2/	DR www	Yes, The VCS PD is based on the template version of 19 November 2007, which has been confirmed to be the latest according to VCS website (http://v-c-s.org/docs/VCS%20PD.doc).		OK
1.2. Has the VCS PD been established in accordance with the VCS requirements for completing VCS PD issued by the VCS Association?	/1/ /2/	DR	CAR2 Please refer to Page 1 of the VCS PD, the "Date of the VCS PD" and "Table of Contents" shall be completed.	~~CAR2~~	OK (Refer to Table 2)
2. Project Description (VVM E.4)					
2.1. Does the VCS PD contain a description, which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation?	/1/ /2/ /3/ /4/ /7/	DR	CAR1 The unique geographical coordinates of the grouped projects shall be provided in the revised PD. CAR3 The project proponents shall clearly describe the major technical specifications of the main equipment (i.e. water turbine generators and substation) for each grouped project. CL1	~~CAR1~~ ~~CAR3~~ ~~CL1~~	OK (Refer to Table 2)

²⁷ MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search.

			The project proponents shall comprehensively justify with supporting evidence on how the start date and the operational lifetime have been determined for the grouped project.		
2.2. In the case of greenfield project activity, is the project design described sufficiently by means of specifications, drawings and manuals? <i>Provide Yes/No answer and indicate the documents which have been reviewed in relation to the issue.</i>	/1/ /2/ /3/ /4/ /7/	DR	Not applicable. All the grouped projects have been put into commercial operation.		OK
2.3. Does the project activity reflect current good practices, uses state of the art technology or would the technology result in a significantly better performance, than any commonly used technologies in the host country? <i>Provide the description of how validation has been carried out and what comparisons have been made.</i>	/1/ /2/ /3/ /4/ /7/	DR I	Yes, all the grouped projects are hydropower projects, of which the technology has been widely applied in China.		OK
2.4. In cases where the project activity involves the alteration of an existing installation or process, does the VCS PD provide a clear description of the differences between the project and the pre-project scenario? <i>Please, provide Yes/Now answer and update Tables 2, 3 and 4 accordingly, if there is anything unclear in the provided description.</i>	/1/ /2/ /3/ /4/ /7/	DR I	CAR4 It shall be clearly demonstrated in the revised PD that the retrofitted hydropower projects or the reservoir-type hydropower projects meet the eligibility of the applied methodology (i.e. AMS.I.D Version 13). The information of the reservoir and the differences between the project and the pre-project scenario shall be clearly described in the revised PD.	CAR4	OK (Refer to Table 2)

2.5. Does the project grouping apply for the proposed project? If yes, does the VCS PD include a description of one central GHG information system and controls associated with the project and monitoring?	/1/ /2/ /3/ /4/ /7/	DR I	Yes, the project grouping has been applied for the proposed project. However, the description of one central GHG information system and controls associated with the project and monitoring are not clearly enough.	CL2	OK (Refer to Table 2)
2.6. Does the central GHG information system and controls include items identified in ISO14064-3:2006, clause 4.5?	/1/ /2/ /3/ /4/ /7/	DR I	CL2 The project proponents should clarify with supporting information about the central GHG information system and controls associated with the project and monitoring, particularly for: a). systems and processes that ensure the accuracy of the GHG data and information; b). design and maintenance of the GHG information systems; c). systems and processes that support the GHG information system.	CL2	OK (Refer to Table 2)
3. Project Start Date and Crediting Period					
3.1. Are the project's start date clearly defined and evidenced? Does the project start date meet the requirements as stated in VCS 2007.1 clause 5.2.1? If project grouping is applied, each grouped project shall meet the requirement of VCS 2007.1 clause 5.2.1.	/1/ /2/ /3/ /4/ /7/	DR I	CL1 The project proponents shall comprehensively justify with supporting evidence on how the start date and the operational lifetime have been determined for the grouped project.	CL1	OK (Refer to Table 2)
3.2. Is the start of the crediting period clearly defined and reasonable?	/1/ /2/	DR I	The start date of the crediting period is 28 th March 2006, which has been confirmed to be reasonable for non-AFOLU project according to VCS 2007.1.		OK
4. Baseline and Monitoring methodology					
4.1. General requirements					

4.1.1 Is the methodology used in the project activity an approved VCS Program methodology or a methodology from a VCS-approved GHG programs? Is the selected methodology version still valid?	/1/ /2/ /3/ /4/ /7/	DR www	The VCS PD applies CDM program methodology AMS.I.D version 13, which is from a VCS-approved GHG program. The applied methodology is valid till 30 th July 2009 and can be submitted for registration within 8 months according to CDM rules.		OK
4.2. Applicability of the selected methodology					
4.2.1 Are all applicability conditions of the selected baseline and monitoring methodology and all tools involved satisfied by the project activity? <i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures. Otherwise amend the Tables 2 and 3 accordingly.</i>	/1/ /2/ /3/ /4/ /7/	DR	CAR4 It shall be clearly demonstrated in the revised PD that the retrofitted hydropower projects or the reservoir-type hydropower projects meet the eligibility of the applied methodology (i.e. AMS.I.D Version 13). The information of the reservoir and the differences between the project and the pre-project scenario shall be clearly described in the revised PD.	CAR4	OK (Refer to Table 2)
4.2.2 Is the selection of the applied baseline and monitoring methodology justified?	/1/ /2/ /7/	DR	Idem	CAR4	OK (Refer to Table 2)
4.2.3 Is the selected methodology correctly quoted in all related documents?	/1/ /2/ /7/	DR	Yes.		OK

4.2.4 Does the VCS PD sufficiently describe all the GHG emission sources or sinks occurring as a result of project activity, which have not been accounted for under the selected methodology and are expected to contribute more than 1% of the overall expected average annual emission reductions? <i>Provide Yes/No answer. Indicate the sources or sinks of GHG, which were proved to be negligible. Otherwise amend the Tables 2 and 3 accordingly.</i>	/1/ /2/ /3/ /4/ /7/	DR	CAR5 Please refer to Section 2.3 of the VCS PD, the GHG sources, sinks and reservoirs are not completely justified according to the applied methodology. Existing table appears to omit the CH₄, N₂O emissions for project activity. The CH₄ emissions shall be considered if the project activity involves reservoir.	~~CAR5~~	OK (Refer to Table 2)
4.3 Project boundary					
4.3.1 Does the VCS PD correctly describe the project boundary? <i>Provide Yes/No answer. And amend the Tables 2 and 3 if needed.</i>	/1/ /2/ /3/ /4/ /7/	DR	CL3 A process flow chart should be provided in Section 2.3 to demonstrate how the project boundary is determined.	~~CL3~~	OK (Refer to Table 2)
4.3.2 Does the VCS PD correctly indicate and describe the emission sources and sinks of GHG gases that are included in the project boundary?	/1/ /2/ /3/ /4/ /7/	DR	CAR5 Please refer to Section 2.3 of the VCS PD, the GHG sources, sinks and reservoirs are not completely justified according to the applied methodology. Existing table appears to omit the CH₄, N₂O emissions for project activity. The CH₄ emissions shall be considered if the project activity involves reservoir.	~~CAR5~~	OK (Refer to Table 2)

4.3.3 In cases where the methodology allows project participants to choose whether a source or gas is to be included in the project boundary, is the choice explained and justified by PPs?	/1/ /2/ /3/ /4/ /7/	DR	Not applicable according to AMS.I.D Version 13.		
4.4 Baseline identification					
4.4.1 Has the procedure contained in the selected methodology to identify the most reasonable baseline scenario been applied correctly and documented in the VCS PD?	/1/ /2/ /3/ /4/ /7/	DR	CAR6 The baseline scenario shall be justified according to the applied methodology by considering the conditions that: a). the project activity involves capacity addition at an existing unit; b). the project activity seeks to retrofit or modify an existing generating facility.	CAR6	OK (Refer to Table 2)
4.4.1.1 Is the identified baseline scenario plausible?	/1/ /7/	DR	See 4.4.1.	CAR6	OK (Refer to Table 2)
4.4.1.2 Are all assumptions stated in a transparent and conservative manner?	/1/ /7/	DR	See 4.4.1.	CAR6	OK (Refer to Table 2)
4.4.2 Does the selected methodology require the use of tools <u>and</u> does VCS PD reflects that correctly?	/1/ /7/	DR	Yes, the "Tool to calculate the emission factor for an electricity system" (Version 01.1, EB 35) has been correctly applied in the VCS PD.		OK
4.4.2.1 Were all the tools applied correctly?	/1/ /7/ /9/	DR	Yes.		OK

4.4.3 In case the methodology requires several alternative scenarios to be considered in the identification of the most reasonable baseline scenario, have all scenarios been considered <u>and</u> have no reasonable alternative scenario been excluded?	/1/ /7/	DR	Not applicable. The applied methodology does not require several alternative scenarios and the baseline scenario is identified by AMS.I.D Version 13.		OK
4.4.3.1 Has the choice of the baseline scenario been done using conservative assumptions?	/1/ /7/	DR	Yes.		OK
4.4.4 Is the identified baseline scenario reasonable according to the assumptions, calculations and rationales used in the VCS PD and other reference sources?	/1/ /7/	DR	CAR7 Please refer to Section 2.3 and Section 3.3 of the VCS PD, the Guidance issued by China DNA shall be clearly referenced with the issuing date and official web link.	~~CAR7~~	OK (Refer to Table 2)
4.4.5 Does the VCS PD describe how the national and sectoral policies relevant to the baseline scenario have been identified and considered in the VCS PD?	/1/ /7/	DR	Yes.		OK
4.4.6 Does the VCS PD provide a verifiable 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 project activity?	/1/ /7/	DR	Yes.		OK
4.5 Algorithm and/or formulae used to determine emission reductions					
4.5.1 Are all calculations applied and documented according to the selected methodology and in a complete and transparent manner?	/1/ /7/ /9/	DR	CL4 The emission reductions calculation sheets should be provided in a transparent manner, which ensures the claimed emission reductions can be resulted by checking the spread sheet.	~~CL4~~	OK (Refer to Table 2)

4.5.2 In case the methodology allows a selection between different options for equations or parameters, has adequate justification been given and have the correct equations and parameters been used, in accordance with the methodology selected?	/1/ /7/ /9/	DR	CAR8 The baseline emissions, project emissions and leakage shall be determined according to the applied methodology by considering the conditions that: a). the project activity involves capacity addition at an existing unit; b). the project activity seeks to retrofit or modify an existing generating facility; c). the project activity involves constructions of reservoir.	~~CAR8~~	OK (Refer to Table 2)
4.5.3 In case some data and parameters will not be monitored throughout the crediting period, but have already been determined and fixed, are all data sources, assumptions and calculations correct, applicable to the proposed VCS project activity and conservative?	/1/ /7/ /9/	DR	CAR7 Please refer to Section 2.3 and Section 3.3 of the VCS PD, the Guidance issued by China DNA shall be clearly referenced with the issuing date and official web link. CAR9 Please refer to Section 3.3 of the VCS PD, the claimed data sources (i.e. China Electric Power Yearbook 2004~2006 and China Energy Statistics Yearbook 2004~2006) are not consistent with "Annex: Baseline Information", where the China Electric Power Yearbook 2007 and China Energy Statistics Yearbook 2007 are referenced.	~~CAR7~~ ~~CAR9~~	OK (Refer to Table 2)
4.5.4 In case data and parameters will be monitored on implementation and hence become available only after validation of the project activity, are the estimates provided in the VCS PD for these data and parameters reasonable?	/1/ /7/ /9/	DR	See 4.5.2	~~CAR8~~	OK (Refer to Table 2)

4.5.5 Have the major risks and uncertainties, which can influence the emission reduction estimates, been identified and addressed in the VCS PD?	/1/ /7/ /9/	DR	No major risks and uncertainties have been identified in the VCS PD.		OK
4.6 Leakage					
4.6.1 Has the leakage been identified and calculated according to the approved methodology?	/1/ /7/	DR	CAR8 The baseline emissions, project emissions and leakage shall be determined according to the applied methodology by considering the conditions that: a). the project activity involves capacity addition at an existing unit; b). the project activity seeks to retrofit or modify an existing generating facility; c). the project activity involves constructions of reservoir.	CAR8	OK (Refer to Table 2)
4.6.2 Have the leakage been addressed in complete, conservative and substantiated manner?	/1/ /7/	DR	See 4.6.1	CAR8	OK (Refer to Table 2)
4.6.3 Are uncertainties in the leakage emission estimates properly addressed?	/1/ /7/	DR	No uncertainties in leakage emission estimates have been addressed.		OK
5. Additionality					
5.1 Identification of alternatives					

5.1.1 What additionality tool has been selected in the VCS PD? Does it comply with the requirement of VCS 2007.1 clause 5.8 and the latest FAQs at VCS website? (http://www.v-c-s.org/faq.html)	/1/ /2/ /3/ /4/ /7/ /8/	DR www	The barrier analysis is adopted to demonstrate the additionality of the Grouped Project in accordance with the Attachment A to the Appendix B of the Simplified Modalities and Procedures for Small-scale CDM Project Activities, which is required by the AMS.I.D Version 13.		OK
5.1.2 Does the VCS PD identify and list credible alternatives to the VCS project activity in order to determine the most realistic baseline scenario, unless selected approved methodology prescribes/identifies the baseline scenario and no further analysis is required?	/1/ /2/ /7/ /8/	DR	No other alternative should be justified since the project applies investment barrier analysis to demonstrate additionality.		OK
5.1.3 Does the list of alternatives include as one of the options that the project activity is undertaken without being registered as a VCS project activity?	/1/ /2/ /7/ /8/	DR	Not applicable		OK
5.1.4 Does the list contain all realistic/credible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the project activity? <i>Note: All alternatives listed in the selected methodology should be included, as well as those not covered by the methodology.</i>	/1/ /2/ /7/ /8/	DR	Not applicable		OK
5.1.5 Is the exclusion of the alternatives for legal reasons justified? <i>Note: Some alternatives might be illegal, according to the local regulations, but still widely practiced due to lack of enforcement. It should be verified.</i>	/1/ /2/ /7/ /8/	DR	Not applicable		OK

5.2 Investment Analysis					
5.2.1 Are all sources of revenues (including savings) have been considered in the VCS PD and all calculations?	/1/ /4/ /8/	DR	Not applicable. The investment analysis is not adopted for demonstration of additionality.		OK
5.2.2 Is the type of investment analysis selected correctly in the VCS PD?	/1/ /4/ /8/	DR	The investment analysis is not adopted for demonstration of additionality.		OK
5.3 Barrier analysis					
5.3.1 Are there any issues addressed in the barrier analysis that have a clear direct impact on the financial viability of the project activity and that shall be assessed by an investment analysis?	/1/ /2/ /4/ /8/	DR	Not applicable. No issues addressed in the barrier analysis have a clear direct impact on the financial viability of the project activity.		OK
5.3.2 Do the listed barriers exist <u>and</u> is their existence substantiated? Note: (a) by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics and/or (b) by interviews with relevant individuals: including members of industry associations, government officials or local experts if necessary?	/1/ /2/ /4/ /8/	DR	Please also see the validation findings of "Ex-post Financial Analysis for Sampling Projects" in <u>Annex to Table 2</u> . CL11 The supporting evidence, which has been referenced in Footnote 8 have not been received. The referenced articles of Footnotes 30,42,43,44, were published before the year of 2000, which is much earlier than the implementation starting year of the grouped project activities (i.e. after the year of 2000). The extracted information could not reflect the real situations when the grouped projects commenced implementations after the year of 2000. CL12 It was understood that the barriers analysis are based on technical	CL11 CL12 CL13 CL15	OK (Refer to Table 2)

			literatures, however it should be further clarified with supporting evidence in Section 2.5 of the revised PD that how the specific barriers were applied to the grouped project activity. In particular, the relevant governmental policy and hydro resources development background distinguish among different sub-groups (i.e. Chongqing City, Sichuan Province, Yunnan Province and Guizhou Province). CL13 It should be clarified with supporting evidence of the grouped project on the justifications that “small hydropower projects do not always benefit from the VAT reduction (from 17% to 6%).” On the contrary, it has been observed that most of the sampling projects have enjoyed the VAT reduction policy and the VAT tax rate was verified as 6% according to the electricity sale receipts. CL15 Please refer to Page 52 of the VCS PD, the project proponents are requested to clarify with supporting information on whether the “Automatic Generation Control (AGC)” has been used for these grouped projects. The impacts of the “AGC” electricity dispatching on the operation of these grouped hydropower plants should be substantiated with supporting evidence.		
5.3.3 Would any of the identified barriers prevent the implementation of the project activity but not equally prevent the implementation of the	/1/ /2/	DR	CL14 The project proponents are requested to	CL14	OK

possible alternatives, in particular the implementation of the identified baseline scenario?	/4/ /8/		substantiate with supporting information on whether any of the identified barriers would not equally prevent the implementation of the possible alternatives, in particular the implementation of the identified baseline scenario, which has been justified according to AMS.I.D Version 13.		(Refer to Table 2)
5.4 Common practice analysis					
5.4.1 Does the additionality tool requires common practice analysis for the project?	/1/ /2/ /7/ /8/	DR	The additionality tool does not require common practice analysis and this is in accordance with the applied methodology.		OK
6. Monitoring plan					
6.1 Are all parameters required by the selected approved methodology or tool identified <u>and</u> listed in the VCS PD?	/1/ /2/ /3/ /4/ /7/	DR I	CL5 Please refer to Section 3.2, Page 33 and Page 37 of the VCS PD, it is not clear how the net electricity is monitored for each grouped project by considering the distinguishing electrical connection systems among the grouped projects. Existing description “EGExport,y” appears as the sum of net electricity of the grouped project within Southern China Power Grid and Central China Power Grid.	CL5	OK (Refer to Table 2)

6.2 Is the measurement method clearly stated for each value to be monitored and deemed appropriate?	/1/ /2/ /3/ /4/ /7/	DR I	CL6 Please refer to Section 3.2, Page 33 and Page 37 of the VCS PD, it should be further clarified with supporting evidence on how the deduction of 2% is determined in a conservative manner. The grouped projects which use this "2% deduction" method should be clearly listed.	~~CL6~~	OK (Refer to Table 2)
6.3 Are values of the ex-ante parameters / monitoring parameters selected correctly and conservative in accordance to methodology or tools?	/1/ /2/ /3/ /4/ /7/ /9/ /18/	DR I www	CL7 The calculation spread sheets of the baseline emission factors (i.e. OM&BM) for CCPG and CSPG should be provided. Please also refer to Section 3.3 of the VCS PD, the tabular contents (e.g. data/parameter, description, data source and value applied) should be consistent with Section 4.1 and Annex 1: Baseline Information.	~~CL7~~	OK (Refer to Table 2)
6.4 Is the measurement equipment for each parameter described and deemed appropriate?	/1/ /2/ /3/ /4/ /7/	DR I	CAR10 The detailed information of the monitoring meters for each grouped project (i.e. accuracy, installation position) are not clearly demonstrated in the VCS PD.	~~CAR10~~	OK (Refer to Table 2)
6.5 Is the measurement accuracy addressed and deemed appropriate?	/1/ /2/ /3/ /4/ /7/	DR	See 6.4	~~CAR10~~	OK (Refer to Table 2)

6.6 Are procedures in place on how to deal with erroneous measurements <u>and</u> are the corrective actions identified?	/1/ /2/ /3/ /4/ /7/	DR	See 6.8.	CL2	OK (Refer to Table 2)
6.7 Is the frequency of measurement identified and deemed appropriate?	/1/ /2/ /3/ /4/ /7/	DR I	Yes, the monitoring meters are continuous measurement and monthly recorded.		OK
6.8 Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/1/ /2/ /3/ /4/ /7/	DR I	CL2 The project proponents should clarify with supporting information about the central GHG information system and controls associated with the project and monitoring, particularly for: a). systems and processes that ensure the accuracy of the GHG data and information; b). design and maintenance of the GHG information systems; c). systems and processes that support the GHG information system.	CL2	OK (Refer to Table 2)
6.9 Are the sampling, measurement methods and procedures defined?	/1/ /2/ /3/ /4/ /7/	DR	Yes.		OK

6.10 Are procedures identified for maintenance of monitoring equipment and installations?	/1/ /2/ /3/ /4/ /7/	DR	CL2	CL2	OK (Refer to Table 2)
6.11 Are the equipment calibration intervals identified and justified?	/1/ /2/ /3/ /4/ /7/	DR	The monitoring meters are periodically calibrated according to relevant national standards.		OK
6.12 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/1/ /2/ /3/ /4/ /7/	DR	See 6.8.	CL2	OK (Refer to Table 2)
6.13 Are the monitoring arrangements described in the monitoring plan feasible within the project design?	/1/ /2/ /3/ /4/ /7/	DR	See 6.8	CL2	OK (Refer to Table 2)
6.14 Are the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, sufficient to ensure that the emission reductions achieved by / resulting from the project activity can be reported ex post and verified?	/1/ /2/ /3/ /4/ /7/	DR	See 6.8.	CL2	OK (Refer to Table 2)
6.15 Do the PPs make provisions for personnel training needs?	/1/ /7/	DR	Yes, the training records have been reviewed during site assessment and checked to be valid.		OK

6.16	Is the authority and responsibility of overall project management clearly described?	/1/ /7/	DR	See 6.8.	GL2	OK (Refer to Table 2)
6.17	Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/ /7/	DR	See 6.8.	GL2	OK (Refer to Table 2)
6.18	Are procedures identified for review of reported results/data?	/1/ /7/	DR	See 6.8.	GL2	OK (Refer to Table 2)
6.19	Is the data archiving period for this project activity stated in the VCS PD and appropriate? <i>Note: All archived monitoring data, required for verification and issuance, should be kept for at least two years after the end of the crediting period or the last issuance of CER.</i>	/1/ /7/	DR	Yes, all data will be kept for an additional period of 2 years following the end of the crediting period.		OK
7. Monitoring of the leakage						
7.1	Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/ /7/	DR	See 6.8.	GL2	OK (Refer to Table 2)
7.2	Is the choice of project leakage indicators made according to selected methodology in a reasonable and conservative manner? <i>Note: local knowledge and sectoral expertise shall also be considered.</i>	/1/ /7/	DR	See 6.8.	GL2	OK (Refer to Table 2)
7.3	Is the measurement method clearly stated and deemed appropriate for each leakage value?	/1/ /7/	DR	See 6.8.	GL2	OK (Refer to Table 2)
8. Sustainable development						

8.1 If VCS PD indicates any additional environmental benefits of the project, other than GHG emission reductions, were those benefits properly substantiated?	/1/ /7/	DR	Yes. The project activity will also benefit local residents through road constructions, agricultural land irrigation, creating temporary and permanent job opportunities. The local government will also benefit from the additional taxes created by the project activity.		OK
9. Stakeholders' consultation and comments					
9.1 Were the stakeholders identified in appropriate and complete manner?	/1/ /2/ /4/	DR I	CL8 It should be further clarified in Section 6 of the VCS PD how the local stakeholders have been identified and invited to comments. The stakeholder consultation records (e.g. photos, interview notes and notifications etc.) should be provided to validation team.	CL8	OK (Refer to Table 2)
9.2 Are the identified stakeholders plausible?	/1/ /2/ /4/	DR I	See 9.1.	CL8	OK (Refer to Table 2)
9.3 Does VCS PD describe the means being used to invite local stakeholder's comments?	/1/ /2/ /4/	DR I	Yes, the local stakeholders have been invited to comments through internet, onsite visits and direction interviews.		OK
9.4 Were those means appropriate?	/1/ /2/ /4/	DR	Yes.		OK
9.5 Was the project presented to the stakeholders in unbiased manner?	/1/ /2/ /4/	DR	See 9.1.	CL8	OK (Refer to Table 2)

9.6	If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/ /2/ /4/	DR	Yes, the stakeholder consultation process is required during environmental impact assessment process according to China's regulations and was described in the Environmental Impact Assessment Report, which is approved by relevant government authorities.		OK
9.7	Is a summary of the stakeholder comments provided in the VCS PD?	/1/ /2/ /4/	DR	Yes, the stakeholder comments are overall supportive and no negative comments have been received.		OK
9.8	Has due account of any stakeholder comments been taken by PPs and reflected in the VCS PD?	/1/ /2/ /4/	DR	Idem.		OK
10. Environmental impacts						
10.1	Is the documentation supplied by the PPs regarding environmental impacts relevant and accurately reflected in the VCS PD?	/1/ /2/ /4/	DR	CL9 Please refer to Section 5 of the VCS PD, the existing descriptions of environmental impact appears to be too general for the whole grouped project. Therefore, it should be further clarified that the environmental impact of each grouped project has been comprehensively and accurately reflected in this section by considering the project distinctions among the whole group.	CL9	OK (Refer to Table 2)
10.2	Is an environmental impact assessment (EIA) required for the VCS project activity? <i>Note: determine by using a review of relevant legislation and local expertise.</i>	/1/ /2/ /4/	DR	Yes, the environmental impact assessment is required for the proposed hydropower projects according to China's regulations.		OK

10.3 In case an EIA is required, has the EIA has been approved by local authorities and is the outcome accurately reflected in the VCS PD?	/1/ /2/ /4/	DR	CL10 The project proponents are requested to provide a comprehensive list to indicate the environment impact assessment report/form accomplishment and approval status with respect to the relevant responsible entity and issuance date.	CL10	OK (Refer to Table 2)
10.4 Does the VCS PD include a brief description of the environmental effects of the project, including transboundary?	/1/ /2/ /4/	DR	See 10.1.	CL9	OK (Refer to Table 2)
10.5 Are those effects properly addressed in the design of the project activity?	/1/ /4/	DR	See 10.1.	CL9	OK (Refer to Table 2)
10.6 Does the project comply with environmental legislation in the host country?	/1/ /4/	DR	Yes.		OK

Table 2 List of Requests for Corrective Action (CAR) and Clarification (CL)

Observation (CAR/CL)	Reference	Summary of project owner response	Validation team conclusion
CAR1 The unique geographical coordinates of the grouped projects shall be provided in the revised PD. Each grouped project shall be clearly marked with the relevant geographical maps. Existing Figure 1~4 can not be clearly understood.	2.1	Revision has been done in section 1.4, a full list of geographical coordinates is provided in the PD. The coordinates data are all from the real GSP measurement data provided by the intermediaries.	OK. The unique geographical coordinates have been identified in the revised PD and checked to be valid. The CAR is therefore closed.
CAR2 Please refer to Page 1 of the VCS PD, the "Date of the VCS PD" and "Table of Contents" shall be completed.	1.2	Date of the VCS PD and Table of Contents have been completed in the revised PD.	OK. The date of the VCS PD and Table of Contents has been provided in the revised PD. The CAR is therefore closed.
CAR3 The project proponents shall clearly describe the major technical specifications of the main equipment (i.e. water turbine generators and substation) for each grouped project.	2.1	Revision has been done in section 1.8. A table with the major technical specifications of the main equipment for all hydropower plants under the grouped project has been provided. The technical information of all sampling hydropower plants has been collected from the onsite visits during onsite validation/verification by the project proponents. And the technical information of all the rest hydropower plants has been collected in the way of recording the information onsite by the project owners of each hydropower plants under the Grouped project.	OK. The major technical specifications of main equipment of all grouped projects have been comprehensively provided in the revised PD. The technical information of sampling projects has been checked to be consistent with the name plates of the water turbine generators, which have been verified during onsite assessment. The CAR is therefore closed.
CAR4 It shall be clearly demonstrated in the revised PD	2.4	All retrofitted hydropower plants	OK.

that the retrofitted hydropower projects or the reservoir-type hydropower projects meet the eligibility of the applied methodology (i.e. AMS.I.D Version 13). The information of the reservoir and the differences between the project and the pre-project scenario shall be clearly described in the revised PD.	4.2	(17_Luotian, 19_Baidongyan and 89_Dashi Stage I) have been withdrawn. It has been clearly demonstrated in the revised PD that the only two hydropower plants with reservoirs meet the eligibility of the applied methodology.	Since all retrofitted projects were withdrawn by the project proponents, there is no need to consider the retrofitted projects under AMS.I.D Version 13. It has been checked by the validation team that the power density of Project No.74 and No.75 was calculated as 16 W/m ² and 58 W/m ² . The area of the reservoirs were confirmed to be selected according to the EIA reports. The CAR is therefore closed.
CAR5 Please refer to Section 2.3 of the VCS PD, the GHG sources, sinks and reservoirs are not completely justified according to the applied methodology. Existing table appears to omit the CH ₄ , N ₂ O emissions for project activity. The CH ₄ emissions shall be considered if the project activity involves reservoir.	4.2 4.3	There are only two hydropower plants under the grouped project having reservoirs (74_Puti 1 and 75_Puti 2), and the power densities of the two hydropower are all greater than 10 W/m ² , so no need to consider the project emissions from the reservoirs. The relevant clarification has been provided in Section 2.3 of the revised PD.	OK. It has been confirmed that the power density of Project No.74 and No.75 were calculated in accordance with ACM0002 Version 10 Page 7/19. The area of the reservoirs were confirmed to be selected according to the EIA reports. It has been checked by the validation team that the power density of Project No.74 and No.75 was calculated as 16 W/m ² and 58 W/m ² , which are both greater than 10 W/m ² . Therefore, the potential project emissions from water reservoirs are zero according to ACM0002 Version 10 Page 7/19. The CAR is therefore closed.
CAR6 The baseline scenario shall be justified according to the applied methodology by considering the conditions that: a). the project activity involves capacity addition at an existing unit; b). the project activity seeks	4.4	All retrofitted hydropower plants (17_Luotian, 19_Baidongyan and 89_Dashi Stage I) have been withdrawn.	OK. Since all retrofitted projects were withdrawn by the project proponents,

to retrofit or modify an existing generating facility.			there is no need to justify the baseline scenario of the retrofitted projects under AMS.I.D Version 13. The CAR is therefore closed.
CAR7 Please refer to Section 2.3 and Section 3.3 of the VCS PD, the Guidance issued by China DNA shall be clearly referenced with the issuing date and official web link.	4.4 4.5	The reference website has been updated in section 2.3 of PD	OK. The public available information of the China DNA's Guidance has been provided in Section 2.3 of the revised PD and was checked to be valid. The CAR is therefore closed.
CAR8 The baseline emissions, project emissions and leakage shall be determined according to the applied methodology by considering the conditions that: a). the project activity involves capacity addition at an existing unit; b). the project activity seeks to retrofit or modify an existing generating facility; c). the project activity involves constructions of reservoir.	4.5 4.6	All retrofitted hydropower plants (17_Luotian, 19_Baidongyan and 89_Dashi Stage I) have been withdrawn.	OK. Since all retrofitted projects were withdrawn by the project proponents, there is no need to justify the baseline emissions, project emissions and leakage of the retrofitted projects under AMS.I.D Version 13. The CAR is therefore closed.
CAR9 Please refer to Section 3.3 of the VCS PD, the claimed data sources (i.e. China Electric Power Yearbook 2004~2006 and China Energy Statistics Yearbook 2004~2006) are not consistent with "Annex: Baseline Information", where the China Electric Power Yearbook 2007 and China Energy Statistics Yearbook 2007 are referenced.	4.5	Revision has been made in section 3.3 and Annex 1 and section 4	OK. The referenced information of the data sources has been confirmed to be consistent and are in accordance with China DNA's 2008 Baseline Emission Factors for Regional Power Grids in China/18/. The CAR is therefore closed.
CAR10 The detailed information of the monitoring meters for each grouped project (i.e. accuracy, installation position) are not clearly demonstrated in the VCS PD.	6.4 6.5	The detail information of the monitoring meters for each grouped project (i.e. accuracy, installation position) have been clearly provided in Table 3-3 in PD.	OK. The detailed information of the monitoring meters for each grouped project has been comprehensively provided in the revised PD. The CAR is therefore closed.

CL1 The project proponents shall comprehensively justify with supporting evidence on how the start date and the operational lifetime have been determined for the grouped project.	2.1	A list contained project start date and the operational lifetime has provided in the Annex II of the PD. The date of trial operation of each hydropower plant under the grouped project is taken as the project start date, and all the date information is collected from each construction accomplishment acceptance report of each hydropower plants under the Grouped project.	OK. All the grouped projects have been put into commercial operation and the project start date has been determined as the date of commencing trail run according to the Construction Accomplishment Acceptance Report, which is a mandatory document compiled by local water conservancy authorities and deemed to be third-party and credible evidence for validation. Since the commencing date of trail operation is the earliest date on which the electricity is delivered to the grid, it is reasonable to justify it as the project start date representing the date on which the project began removing GHG emissions within the Grid. The validation team has reviewed the Construction Accomplishment Acceptance Report for the sampling projects and has verified that the project start date has been appropriately determined in the VCS PD and is after the date of 1st January 2002. Therefore, the validation team is able to confirm that the project start date of the Grouped Project complies with the requirement as stipulated in VCS 2007.1. The CL is therefore closed.
CL2 The project proponents should clarify with supporting information about the central GHG information system and controls associated with the project and monitoring, particularly for: a). systems and	2.5 2.6 6.6	Further clarifications have been added in Section 4 for the central GHG information system and controls associated with the project	OK. A central information system has been established for the Grouped Project and comprehensively described in

processes that ensure the accuracy of the GHG data and information; b). design and maintenance of the GHG information systems; c). systems and processes that support the GHG information system.	6.8 6.10 6.12 6.13 6.16 6.17 6.18 7.1 7.2 7.3	and monitoring.	Section 3.4 of the VCS PD/1/. The monitoring organization structure, quality assurance process and monitoring roles and responsibility have been clearly identified in Figure 3-1, Figure 3-2 and Figure 3-3. The central GHG information system has integrated four functional units: projects owners, Intermediary companies, South Pole's China team and Global Quality Control and Technical Support Team, where the coordination effectiveness has been observed during site assessment. According to the PD/1/, South Pole is responsible for gathering and managing individual projects' information and their monitoring relevant documents by using their central information control tool (i.e. PMT software). Each project owner sends monthly monitoring information and associated evidences to South Pole Carbon Asset Management Ltd. South Pole checks all documents and compiles the central monitoring report. The processes for collecting, processing, consolidating and reporting GHG data and information have been clearly described in Table 3-2. The CL is therefore closed.
--	--	------------------------	---

CL3 A process flow chart should be provided in Section 2.3 to demonstrate how the project boundary is determined.	4.3	The process flow charts demonstrating the project boundary have been added in the Section 2.3	OK. The process flow charts have been provided in Section 2.3 of the revised PD. The CL is therefore closed.
CL4 The emission reductions calculation sheets should be provided in a transparent manner, which ensures the claimed emission reductions can be resulted by checking the spread sheet.	4.5	Emission reductions calculation sheets have been provided.	OK. The emission reduction calculation spread sheets have been provided in a transparent manner. The CL is therefore closed.
CL5 Please refer to Section 3.2, Page 33 and Page 37 of the VCS PD, it is not clear how the net electricity is monitored for each grouped project by considering the distinguishing electrical connection systems among the grouped projects. Existing description “EG _{Export,y} ” appears as the sum of net electricity of the grouped project within Southern China Power Grid and Central China Power Grid.	6.1	How the net electricity is monitored for each grouped project by considering the distinguishing electrical connection systems among the grouped projects has been clearly clarified in the corresponding parts in PD.	OK. The net on-grid output of each grouped project is monitored by the gateway meter specified in the power purchase agreement, which was signed between the project owner and power grid company. The net on-grid output will be cross-checked with the electricity receipts. The CL is therefore closed.
CL6 Please refer to Section 3.2, Page 33 and Page 37 of the VCS PD, it should be further clarified with supporting evidence on how the deduction of 2% is determined in a conservative manner. The grouped projects which use this “2% deduction” method should be clearly listed.	6.2	The description for the misleading value of 2% has been deleted from the corresponding parts in PD.	OK. The description for the misleading value of 2% has been deleted in the revised PD. The CL is therefore closed.

CL7 The calculation spread sheets of the baseline emission factors (i.e. OM&BM) for CCPG and CSPG should be provided. Please also refer to Section 3.3 of the VCS PD, the tabular contents (e.g. data/parameter, description, data source and value applied) should be consistent with Section 4.1 and Annex 1: Baseline Information.	6.3	The calculation spread sheets of the baseline emission factors (i.e. OM&BM) for CCPG and CSPG have been provided. The tabular contents in Section 3.3 have been revised to be consistent with Section 4.1 and Annex 1.	OK. The OM&M calculation sheets for CCPG and CSPG have been provided and were confirmed to be documented according to China DNA's 2008 Baseline Emission Factors for Regional Power Grids in China/18/. The CL is therefore closed.
CL8 It should be further clarified in Section 6 of the VCS PD how the local stakeholders have been identified and invited to comments. The stakeholder consultation records (e.g. photos, interview notes and notifications etc.) should be provided to validation team.	9.1 9.2 9.5	Clarification has been made in section 6 and evidences have been provided.	OK. The supporting evidence on local stakeholder consultation has been received. The consultation process has been described in Section 6 of the revised PD. The CL is therefore closed.
CL9 Please refer to Section 5 of the VCS PD, the existing descriptions of environmental impact appears to be too general for the whole grouped project. Therefore, it should be further clarified that the environmental impact of each grouped project has been comprehensively and accurately reflected in this section by considering the project distinctions among the whole group.	10.1 10.4 10.5	Further clarification has been made in section 5.	OK. It was confirmed that most of the grouped projects are below 5MW (i.e. 83 projects) and the maximum intalled capacity within the grouped projects is 14MW. It has also been confirmed by onsite inspection that the grouped projects are newly-built run-of-river hydropower projects. Since the Grouped Project does not involve constructions of large regulating reservoirs, the environmental impacts are insignificant. No resettlement has been observed during onsite inspection of the sampling projects. The CL is therefore closed.
CL10 The project proponents are requested to provide	10.3	Clarification has been made in	OK.

a comprehensive list to indicate the environment impact assessment report/form accomplishment and approval status with respect to the relevant responsible entity and issuance date.		section 5. A list containing the acquired information required for 95 EIA has been updated in the PD.	The EIA approval information of each grouped project has been provided in the revised PD. The CL is therefore closed.
CL11 The supporting evidence, which has been referenced in Footnote 8 have not been received. The referenced articles of Footnotes 30,42,43,44, were published before the year of 2000, which is much earlier than the implementation starting year of the grouped project activities (i.e. after the year of 2000). The extracted information could not reflect the real situations when the grouped projects commenced implementations after the year of 2000.	5.3	The supporting evidence, which has been referenced in Footnote 8 has been provided. The referenced articles published before the year of 2000 have been deleted, and more literatures have been referenced in the revised PD.	OK. All supporting evidence referenced in the footnotes have been provided and were checked to be valid. The CL is therefore closed.
CL12 It was understood that the barriers analysis are based on technical literatures, however it should be further clarified with supporting evidence in Section 2.5 of the revised PD that how the specific barriers were applied to the grouped project activity. In particular, the relevant governmental policy and hydro resources development background distinguish among different sub-groups (i.e. Chongqing City, Sichuan Province, Yunnan Province and Guizhou Province).	5.3	Further clarifications and supporting evidence have been provided in Section 2.5 of the revised PD to illustrate how the specific barriers were applied to the grouped project activity. The distinctions of the relevant governmental policy and hydro resources development background among different sub-groups have been further clarified.	OK. It was confirmed the grouped projects are located in rural and remote region of Chongqing, Sichuan, Yunnan and Guizhou Provinces. The barriers existed in the four subgroups were similar and the specific barrier analysis for sampling projects have been provided in Annex 4 of the revised PD. The CL is therefore closed.
CL13 It should be clarified with supporting evidence of the grouped project on the justifications that “small hydropower projects do not always benefit from the VAT reduction (from 17% to 6%).” On the contrary, it has been observed that most of the sampling projects have enjoyed the VAT reduction policy and the VAT tax rate was verified as 6% according to the electricity sale receipts.	5.3	The justifications that “small hydropower projects do not always benefit from the VAT reduction (from 17% to 6%).” have been deleted from the revised PD.	OK. The relevant justifications that “small hydropower projects do not always benefit from the VAT reduction (from 17% to 6%) have been deleted in the revised PD. The CL is therefore closed.

CL14 The project proponents are requested to substantiate with supporting information on whether any of the identified barriers would not equally prevent the implementation of the possible alternatives, in particular the implementation of the identified baseline scenario, which has been justified according to AMS.I.D Version 13.	5.3	Clarifications and supporting information have been provided to illustrate that any of the identified barriers would not equally prevent the implementation of the identified baseline scenario.	OK. The validation team has confirmed that the identified barriers are only applicable to small-hydropower projects in rural region and not applicable for coal-fired power plants, which were dominated within the CCPG and CSPG. The CL is therefore closed.
CL15 Please refer to Page 52 of the VCS PD, the project proponents are requested to clarify with supporting information on whether the “Automatic Generation Control (AGC)” has been used for these grouped projects. The impacts of the “AGC” electricity dispatching on the operation of these grouped hydropower plants should be substantiated with supporting evidence.	5.3	The description about the “Automatic Generation Control (AGC)” has been deleted from the revised PD, because the “AGC” applies to the small hydropower plants, which have reservoirs with regulating ability, so it is irrelevant to the grouped project.	OK. The description about the “Automatic Generation Control (AGC)” has been deleted in the revised PD. The CL is therefore closed.

Annex to Table 2 Validation of “Ex-post Financial Analysis” for Sampling Projects²⁸

1st Sampling Project Title: Canglong Hydroelectric Plant (Project No.55)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Chongqing City Grid (as part of Central China Power Grid)	Run-of-river	0.88MW	3805 tCO ₂ e/year	3.76%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<1-01>,<1-15>	☐ CAR ☐ CL ☒ OK	N/A	The Operational Period was in line with SL16-95 and the residue value has been estimated according to the PDR.
Installed Capacity	1*630 + 1*250	kW	<1-01>,<1-02>,<1-05>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the project approval document, and the name plates of the water turbine generators have been verified during site assessment.
Total investment	480	10 ⁴ CNY	<1-01>,<1-02>,<1-05>,<1-15>	☐ CAR ☐ CL ☒ OK	N/A	The total investment was confirmed as 4,800 thousand CNY in the Construction Accomplishment Acceptance Report of the Project.
Annual On-grid Output	3,908	MWh	<1-01>,<1-13>,<1-15>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be selected according to the electricity receipts in the year of 2007
Electricity tariff including VAT	0.22	CNY/kWh	<1-01>,<1-13>,<1-15>	☐ CAR ☐ CL ☒ OK	N/A	The electricity tariff was confirmed to be selected according to the electricity receipts in 2007
Annual O&M cost	50	10 ⁴ CNY	<1-01>,<1-15>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be selected according to PDR Page 8.
Income tax	25	%	<1-01>,<1-18>,<1-19>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<1-01>,<1-20>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Wulong County, the VAT was 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Suratx for education expenses	1	%	<1-01>,<1-16>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448)

²⁸ Note: The findings below are based on “Ex-post Financial calculation spreadsheet” received on 2009-09-18 and 2009-10-13.

						http://www.gov.cn/gongbao/content/2005/content_91662.htm
City maintenance & construction tax rate	3	%	<1-01>,<1-16>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm

Document Review List:

- <1-01>Chongqing City Wulong County Water Resources and Electrical Construction Survey and Design Institute, Preliminary Design Report for Canglong Hydroelectric Plant, June 2003.
- <1-02>Chongqing City Wulong county water and Electrical conservation bureau, The Approval Letter of Canglong Hydroelectric Plant, July 22nd, 2003.
- <1-03>Chongqing City Wulong County Environmental Protection Bureau, EIA Registration Form and Approval Letter of Canglong Hydroelectric Plant, Dec. 1st. 2003.
- <1-04>Chongqing City Wulong County Canglong Hydroelectric Co., Ltd., Business License.
- <1-05>Chongqing City Wulong County Construction Acceptance Committee, Construction Accomplishment Acceptance Report of Canglong Hydroelectric Plant, Jan. 2005.
- <1-06>Chongqing City Wulong County Canglong Hydroelectric Co., Ltd., Grid Connection Agreement, October 2004.
- <1-07>Chongqing Fuling Electric Power Industrial Co. Ltd., Calibration Records of Electricity meters, June 15th. 2009.
- <1-08>Chongqing City Wulong County Canglong Hydroelectric Co., Ltd., Daily and monthly reading records of Canglong Hydroelectric Plant, June 2009.
- <1-09>Chongqing City Wulong County Canglong Hydroelectric Co., Ltd., Staff Training Records, June 2008.
- <1-10>Chongqing City Wulong County Canglong Hydroelectric Co., Ltd., Electrical Connection Scheme of Canglong Hydroelectric Plant, June 2009.
- <1-11>South Pole Carbon Assets Management Co. Ltd. Monitoring report of Canglong Hydroelectric Plant, June 2009.
- <1-12>South Pole Carbon Assets Management Co. Ltd. VCU calculation sheets Canglong Hydroelectric Plant, April 2004 to June 2009.
- <1-13>Chongqing Fuling Electric Power Industrial Co. Ltd., Electricity invoices, April 2004 to June 2009.
- <1-14>South Pole Carbon Assets Management Ltd., Emission Reduction Purchasing Agreement, 15th Nov. 2008.
- <1-15>South Pole Carbon Assets Management Co. Ltd. IRR calculation spread sheet of Canglong Hydroelectric Plant, 21st September 2009.
- <1-16>Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <1-17>Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <1-18>State Council, Statue on Enterprise Income Tax in China, 1993.
- <1-19>Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <1-20>State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
2nd Sampling Project Title: Heixigou Hydroelectric Plant (Project No. 57)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Chongqing City Grid (as part of Central China Power Grid)	Run-of-river	1.0 MW	5038 tCO ₂ e/year	6.84%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<2-01>,<2-16>	☐ CAR ☐ CL ☒ OK	N/A	The Operational Period was in line with SL16-95 and the residue value has been estimated according to the PDR.
Installed Capacity	1*1000	kW	<2-01>,<2-02>,<2-16>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the project approval document, and the name plates of the water turbine generators have been verified during site assessment.
Total investment	745	10 ⁴ CNY	<2-01>,<2-02>,<2-06>,<2-16>	☐ CAR ☐ CL ☒ OK	N/A	The actual investment cost was verified as 7,450 thousand CNY according to construction accomplishment acceptance report.
Annual On-grid Output	5,175	MWh	<2-01>,<2-02>,<2-06>,<2-16>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be adopted according to the electricity receipts dated from 25 th December 2005 to 25 th December 2006.
Electricity tariff including VAT	0.205	CNY/kWh	<2-01>,<2-06>,<2-16>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be consistent with the electricity receipts dated from 25 th December 2005 to 25 th December 2006.
Annual O&M cost	17.112	10 ⁴ CNY	<2-01>,<2-16>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be adopted according to Page 28 of the PDR.
Income tax	25	%	<2-01>,<2-16>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<2-01>,<2-16>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Wulong County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surtax for education expenses	3	%	<2-01>,<2-16>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm
City maintenance &	5	%	<2-01>,<2-16>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent

construction tax rate						with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
-----------------------	--	--	--	--	--	---

Document Review List:

- <2-01> Chongqing City Wulong County Water Conservancy and Electric Power Construction Survey and Design Institute, Preliminary Design Report for Heixigou Hydroelectric Project, July 2001.
- <2-02> Chongqing City Wulong County Water and Electrical Conservation Bureau, Approval Letter of Preliminary Design Report of Heixigou Hydroelectric Project, August 15th, 2001.
- <2-03> Chongqing City Wulong County Environmental Protection Bureau, EIA Registration Form and Approval Letter of EIA Registration Form of Heixigou Hydroelectric Project, October 15th, 2001.
- <2-04> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., Business License.
- <2-05> Chongqing City Wulong County Heixigou Hydroelectric station, Monitoring structure of Heixigou Hydroelectric Project.
- <2-06> Chongqing City Wulong County Hydroelectric Project Completion Acceptance Committee, Construction Accomplishment Acceptance Report of Heixigou Hydroelectric Project, February 15th, 2003.
- <2-07> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., Power Purchasing Agreement, February 25th, 2009.
- <2-08> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., Daily and monthly reading records of Heixigou Hydroelectric Project, June 2009.
- <2-09> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., Monitoring manual of Heixigou Hydroelectric Project, June 3rd, 2009.
- <2-10> Chongqing City Fuling District Water Conservancy and Electric Power Construction Survey and Design Institute, Electrical Connection Scheme of Heixigou Hydroelectric Project.
- <2-11> South Pole Carbon Assets Management Ltd., VCU calculation sheet of Heixigou Hydroelectric Project, from 2006 to 2008.
- <2-12> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., On-Grid Electricity and Tariff Statistical Table of Heixigou Hydroelectric Station, from 2006 to 2008.
- <2-13> Chongqing City Wulong County Power Supply Limited Company, Electricity Transaction Notes of Heixigou Hydroelectric Station, December 2005 to November 2008.
- <2-14> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., Electricity Sales Receipts, January 2006 to December 2008.
- <2-15> South Pole Carbon Asset Management Ltd., Emission Reduction Purchasing Agreement, November 15th, 2008.
- <2-16> South Pole Carbon Assets Management Ltd., IRR calculation sheet of Heixigou Hydroelectric Project, 21st September 2009.
- <2-17> Ministry of Water Resources, Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <2-18> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <2-19> State Council, Statue on Enterprise Income Tax in China, 1993.
- <2-20> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <2-21> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
3rd Sampling Project Title: Muzonghe Stage IV Hydroelectric Plant (Project No.59)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Chongqing City Grid (as part of Central China Power Grid)	Run-of-river	1.08MW	4840 tCO ₂ e/year	9.75%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	25	Years	<3-01>,<3-16>,<3-18>	☐ CAR ☐ CL ☒ OK	N/A	It has been confirmed by validation team that the operational period was 25 years in the PDR Page 13.
Installed Capacity	3*360	kW	<3-01>,<3-02>,<3-16>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the project approval document, and the name plates of the water turbine generators have been verified during site assessment.
Total investment	610	10 ⁴ CNY	<3-01>,<3-06>,<3-16>,<3-18>	☐ CAR ☐ CL ☒ OK	N/A	The actual investment cost is 6,100 thousand CNY according to Construction Accomplishment Acceptance Report.
Annual On-grid Output	4,971.5	MWh	<3-01>,<3-06>,<3-16>,<3-18>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be adopted according to the electricity receipts dated from 25 th December 2006 to 25 th December 2007.
Electricity tariff including VAT	0.205	CNY/kWh	<3-01>,<3-06>,<3-16>,<3-18>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be consistent with the electricity receipts dated from 25 th December 2006 to 25 th December 2007.
Annual O&M cost	15.96	10 ⁴ CNY	<3-01>,<3-06>,<3-16>,<3-18>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be selected according to PDR Page 13.
Income tax	25	%	<3-01>,<3-06>,<3-16>,<3-18>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<3-01>,<3-06>,<3-16>,<3-18>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Wulong County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surat for education expenses	3	%	<3-01>,<3-06>,<3-16>,<3-18>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm
City maintenance & construction tax rate	5	%	<3-01>,<3-06>,<3-16>,<3-18>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City

						Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
--	--	--	--	--	--	--

Document Review List:

- <3-01> Chongqing City Wulong County Water Conservancy and Electric Power Construction Survey and Design Institute, Preliminary Design Report for Muzonghe IV Stage Hydroelectric Project, June 2002.
- <3-02> Chongqing City Wulong County Water and Electrical Conservation Bureau, Approval Letter of Preliminary Design Report of Muzonghe IV Stage Hydroelectric Project, August 12th, 2002.
- <3-03> Chongqing City Wulong County Environmental Protection Bureau, EIA Registration Form and Approval Letter of EIA Registration Form of Heixigou Hydroelectric Project, August 30th, 2002.
- <3-04> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., Business License.
- <3-05> Chongqing City Wulong County Muzonghe IV Stage Hydroelectric station, Monitoring structure of Muzonghe IV Stage Hydroelectric Project.
- <3-06> Chongqing City Wulong County Hydroelectric Project Completion Acceptance Committee, Construction Accomplishment Acceptance Report of Muzonghe IV Stage Hydroelectric Project, March 10th, 2004.
- <3-07> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., Power Purchasing Agreement, February 25th, 2009.
- <3-08> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., Daily and monthly reading records of Muzonghe IV Stage Hydroelectric Project, June 2009.
- <3-09> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., Monitoring manual of Muzonghe IV Stage Hydroelectric Project, June 3rd, 2009.
- <3-10> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., Staff Training Examinations, 2008.
- <3-11> South Pole Carbon Assets Management Ltd., VCU calculation sheet of Muzonghe IV Stage Hydroelectric Project, from 2006 to 2008.
- <3-12> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., On-Grid Electricity and Tariff Statistical Table of Muzonghe IV Stage Hydroelectric Station, from 2006 to 2008.
- <3-13> Chongqing City Wulong County Power Supply Limited Liability Company, Electricity Transaction Notes of Muzonghe IV Stage Hydroelectric Station, December 2005 to December 2008.
- <3-14> Chongqing City Wulong County Landi Hydroelectric Co., Ltd., Electricity Sales Receipts, January 2006 to December 2008.
- <3-15> South Pole Carbon Asset Management Ltd., Emission Reduction Purchasing Agreement, November 15th, 2008.
- <3-16> South Pole Carbon Assets Management Ltd., IRR calculation sheet of Muzonghe IV Stage Hydroelectric Project, 21st September 2009..
- <3-17> South Pole Carbon Assets Management Co. Ltd. IRR calculation spread sheet of Canglong Hydroelectric Plant, March 2009.
- <3-18> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <3-19> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <3-20> State Council, Statue on Enterprise Income Tax in China, 1993.
- <3-21> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <3-22> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects

4th Sampling Project Title: Songshigou Hydroelectric Plant (Project No.63)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Chongqing City Grid (as part of Central China Power Grid)	Run-of-river	1.50MW	2689.1 tCO ₂ e/year	7.41%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	25	Years	<4-01>,<4-14>,<4-15>	☐ CAR ☐ CL ☒ OK	N/A	It has been confirmed by validation team that the operational period was 25 years in the PDR.
Installed Capacity	3*500	kW	<4-01>,<4-02>,<4-14>,<4-15>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the project approval document, and the name plates of the water turbine generators have been verified during site assessment.
Total investment	420	10 ⁴ CNY	<4-01>,<4-02>,<4-14>,<4-15>	☐ CAR ☐ CL ☒ OK	N/A	The total investment was verified as 4,200 thousand CNY according to the Construction Accomplishment Acceptance Report.
Annual On-grid Output	2762.3	MWh	<4-01>,<4-02>,<4-14>,<4-15>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be adopted according to the electricity receipts dated from 15 th November 2007 to 15 th November 2008.
Electricity tariff including VAT	0.22	CNY/kWh	<4-01> ,<4-06> ,<4-15>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be adopted according to the electricity receipts dated from 15 th November 2007 to 15 th November 2008.
Annual O&M cost	15.8	10 ⁴ CNY	<4-01>,<4-14>,<4-15>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be estimated according to Page 11-12 of the PDR.
Income tax	25	%	<4-01> ,<4-14>,<4-15>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<4-01> ,<4-14>,<4-15>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Wulong County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Suratx for education expenses	3	%	<4-01> ,<4-14>,<4-15>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm
City maintenance & construction tax rate	5	%	<4-01>,<4-14>,<4-15>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation

						GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
--	--	--	--	--	--	---

Document Review List:

- <4-01> Chongqing City Wulong County Water Resources and Electrical Construction Survey and Design Institute, Feasibility Study Report for Songshigou Hydroelectric Plant, April 2004.
- <4-02> Chongqing City Wulong county water and Electrical conservation bureau, The Approval Letter for the Feasibility Study Report of Songshigou Hydroelectric Plant, May 17th, 2004.
- <4-03> Chongqing City Wulong County Environmental Protection Bureau, EIA Registration Form and Approval Letter of Songshigou Hydroelectric Plant, May 26th. 2004.
- <4-04> Chongqing City Wulong County Tutan Songshigou Hydroelectric Co., Ltd., Business License.
- <4-05> Chongqing City Wulong County Construction Acceptance Committee, audit report of Wulong County Tukan Hydroelectric Plant, Dec. 12th. 2005.
- <4-06> Chongqing City Wulong County Tukan Songshigou Hydroelectric Co., Ltd., Power Connection Agreement, July 16th. 2008.
- <4-07> Chongqing Fuling Electric Power Industrial Co. Ltd., Calibration records of Electricity meters, August, 2004.
- <4-08> Chongqing City Wulong County Tukan Songshigou Hydroelectric Co., Ltd., Monitoring manual of Songshigou Hydroelectric Plant, June 3rd. 2009.
- <4-09> Chongqing City Wulong County Tukan Songshigou Hydroelectric Co., Ltd., Electrical Connection Scheme of Songshigou Hydroelectric Plant, June 2009.
- <4-10> South Pole Carbon Assets Management Co. Ltd. Monitoring report of Songshigou Hydroelectric Plant, June 2009.
- <4-11> South Pole Carbon Assets Management Co. Ltd. VCU calculation sheets Songshigou Hydroelectric Plant, April 2006 to May 2009.
- <4-12> Chongqing Fuling Electric Power Industrial Co. Ltd., Electricity invoices, April 2006 to May 2009.
- <4-13> South Pole Carbon Assets Management Ltd., Emission Reduction Purchasing Agreement, 15th Nov. 2008.
- <4-14> South Pole Carbon Assets Management Co. Ltd. IRR calculation spread sheet of Songshigou Hydroelectric Plant, 21st September 2009.
- <4-15> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <4-16> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <4-17> State Council, Statue on Enterprise Income Tax in China, 1993.
- <4-18> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <4-19> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
5th Sampling Project Title: Banqiao Stage III Hydroelectric Plant (Project No.64)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Chongqing City Grid (as part of Central China Power Grid)	Run-of-river	2.04MW	9114 tCO ₂ e/year	4.77%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	25	Years	<5-01>,<5-17>	☐ CAR ☐ CL ☒ OK	N/A	It has been confirmed by validation team that the operational period was estimated as 25 years in the PDR.
Installed Capacity	3*680	kW	<5-01>,<5-02>,<5-06>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the project approval document, and the name plates of the water turbine generators have been verified during site assessment.
Total investment	1650	10 ⁴ CNY	<5-01>,<5-02>,<5-06>,<5-17>	☐ CAR ☐ CL ☒ OK	N/A	The total investment was verified as 16,500 thousand CNY according to the Consturciton Accomplishment Acceptance Report.
Annual On-grid Output	9361.65	MWh	<5-01>,<5-06>,<5-17>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be calculated according to the electricity receipts from June 2008 to May 2009.
Electricity tariff including VAT	0.205	CNY/kWh	<5-01>,<5-07>,<5-17>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be calculated according to the electricity receipts from June 2008 to May 2009.
Annual O&M cost	57.6	10 ⁴ CNY	<5-01>,<5-17>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost has been estimated according to the PDR Page 28~29.
Income tax	25	%	<5-01>,<5-17>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<5-01>,<5-17>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Wulong County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surtax for education expenses	3	%	<5-01>,<5-17>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm
City maintenance & construction tax rate	5	%	<5-01>,<5-17>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City

						Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
--	--	--	--	--	--	--

Document Review List:

- <5-01> Chongqing City Wulong County Water Resources and Electrical Construction Survey and Design Institute, Preliminary Design Report for Banqiao Stage III Hydroelectric Plant, May 9th. 2005.
- <5-02> Chongqing City Wulong county water and Electrical conservation bureau, Approval Letter of Banqiao Stage III Hydroelectric Plant, May 19th, 2005.
- <5-03> Chongqing City Wulong County Environmental Protection Bureau, EIA Registration Form and Approval Letter of Banqiao Stage III Hydroelectric Plant, July 20th. 2005.
- <5-04> Chongqing City Wulong County Haoyun Hydroelectric Co., Ltd., Business License.
- <5-05> Chongqing City Wulong County Haoyun Hydroelectric Co., Ltd., Monitoring structure of Haoyun Hydroelectric Plant.
- <5-06> Chongqing City Wulong County Construction Acceptance Committee, Construction Accomplishment Acceptance Report of Haoyun Hydroelectric Plant, Feb. 2008.
- <5-07> Chongqing City Wulong County Haoyun Hydroelectric Co., Ltd., Power Purchasing Agreement, July 16th. 2008.
- <5-08> Chongqing Fuling Electric Power Industrial Co. Ltd., Calibration records of Electricity meters, June 15th. 2009.
- <5-09> Chongqing City Wulong County Haoyun Hydroelectric Co., Ltd., Daily and monthly reading records of Banqiao Stage III Hydroelectric Plant, 2009.
- <5-10> Chongqing City Wulong County Haoyun Hydroelectric Co., Ltd., Monitoring manual of Banqiao Stage III Hydroelectric Plant, June 3rd. 2009.
- <5-11> Chongqing City Wulong County Haoyun Hydroelectric Co., Ltd., Staff Training Records, June 2008.
- <5-12> Chongqing City Wulong County Banqiao Haoyun Hydroelectric Co., Ltd., Electrical Connection Scheme of Banqiao Stage III Hydroelectric Plant, June 2009.
- <5-13> South Pole Carbon Assets Management Co. Ltd. Monitoring report of Banqiao Stage III Hydroelectric Plant, June 2009.
- <5-14> South Pole Carbon Assets Management Co. Ltd. VCU calculation sheets Banqiao Stage III Hydroelectric Plant, April 2008 to June 2009.
- <5-15> Chongqing Fuling Electric Power Industrial Co. Ltd., Electricity invoices, April 2008 to June 2009.
- <5-16> South Pole Carbon Assets Management Ltd., Emission Reduction Purchasing Agreement, 15th Nov. 2008.
- <5-17> South Pole Carbon Assets Management Co. Ltd. IRR calculation spread sheet of Banqiao Stage III Hydroelectric Plant, 21st September 2009.
- <5-18> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <5-19> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <5-20> State Council, Statue on Enterprise Income Tax in China, 1993.
- <5-21> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <5-22> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
6th Sampling Project Title: Baiguo Hydroelectric Plant (Project No.67)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Chongqing City Grid (as part of Central China Power Grid)	Run-of-river	3.20MW	8380 tCO ₂ e/year	7.09%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<6-01>,<6-16>	☐ CAR ☐ CL ☒ OK	N/A	It has been confirmed that the Operational Period is selected according to SL16-95.
Installed Capacity	2*1600	kW	<6-01>,<6-02>,<6-16>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the project approval document, and the name plates of the water turbine generators have been verified during site assessment.
Total investment	1400	10 ⁴ CNY	<6-01>,<6-02>,<6-16>	☐ CAR ☐ CL ☒ OK	N/A	The total investment was confirmed as 14,000 thousand CNY according to Construction Accomplishment Acceptance Report.
Annual On-grid Output	8609	MWh	<6-01>,<6-02>,<6-16>	☐ CAR ☐ CL ☒ OK	N/A	The on-grid output was confirmed to be selected according to electricity receipts from 25 th December 2007 to 25 th December 2008.
Electricity tariff including VAT	0.22	CNY/kWh	<6-01>,<6-07>,<6-16>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be selected according to electricity receipts from 25 th December 2007 to 25 th December 2008.
Annual O&M cost	23.6	10 ⁴ CNY	<6-01>,<6-16>	☐ CAR ☐ CL ☒ OK	N/A	It was confirmed that the annual O&M cost has been calculated according to SL16-95 and the PDR.
Income tax	25	%	<6-01>,<6-16>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<6-01>,<6-16>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Wulong County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surat for education expenses	3	%	<6-01>,<6-16>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm
City maintenance & construction tax rate	5	%	<6-01>,<6-16>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation

						GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
<u>Document Review List:</u> <6-01> Chongqing City Wulong County Water Conservancy and Electric Power Construction Survey and Design Institute, Preliminary Design Report for Baiguo Hydroelectric Project, November 23rd, 2001. <6-02> Chongqing City Wulong County Water and Electrical Conservation Bureau, Approval Letter of Preliminary Design Report of Baiguo and Baiyang Hydroelectric Projects, December 17th, 2001. <6-03> Chongqing City Wulong County Environmental Protection Bureau, EIA Registration Form and Approval Letter of Baiguo Hydroelectric Project, March 26th, 2002. <6-04> Chongqing City Wulong County Yuxiang Water Resources Development Co., Ltd., Business License. <6-05> Chongqing City Wulong County Baiguo Hydroelectric station, Monitoring structure of Baiguo Hydroelectric Project. <6-06> Chongqing City Wulong County Hydroelectric Project Completion Acceptance Committee, Construction Accomplishment Acceptance Report of Baiguo and Baiyang Hydroelectric Projects, February 4th, 2005. <6-07> Chongqing City Wulong County Yuxiang Water Resources Development Co., Ltd., Power Purchasing Agreement of Baiguo and Baiyang Hydroelectric Projects, July 27th, 2008. <6-08> Baiguo Hydroelectric Station, Daily and monthly reading records of Baiguo Hydroelectric Project, June 18th, 2009. <6-09> Chongqing City Wulong County Yuxiang Water Resources Development Co., Ltd., Monitoring manual of Baiguo Hydroelectric Project, June 3rd, 2009. <6-10> Baiguo Hydroelectric Station, Electrical Connection Scheme (copying screen) of Baiguo Hydroelectric Project, June 18th, 2009. <6-11> South Pole Carbon Assets Management Ltd., VCU calculation sheet of Baiguo Hydroelectric Project, from 2006 to 2009. <6-12> Chongqing City Wulong County Yuxiang Water Resources Development Co., Ltd., On-Grid Electricity and Tariff Statistical Table of Baiguo and Baiyang Hydroelectric Stations, from 2006 to 2008. <6-13> Chongqing City Wulong County Power Supply Limited Liability Company, Electricity Transaction Notes of Baiguo and Baiyang Hydroelectric Stations, January 2006 to April 2009. <6-14> Chongqing City Wulong County Yuxiang Water Resources Development Co., Ltd., Electricity Sales Receipts, February 2006 to May 2009. <6-15> South Pole Carbon Asset Management Ltd., Emission Reduction Purchasing Agreement, November 15th, 2008. <6-16> South Pole Carbon Assets Management Ltd., IRR calculation sheet of Baiguo Hydroelectric Project, 21 st September 2009. <6-17> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95) <6-18> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31 st December 2008. <6-19> State Council, Statue on Enterprise Income Tax in China, 1993. <6-20> Chinese Government, Enterprise Income Tax Law, 16 th March 2007. <6-21> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.						

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
7th Sampling Project Title: Longqiao Hydroelectric Plant (Project No.67)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Chongqing City Grid (as part of Central China Power Grid)	Run-of-river	4.00MW	10169.4 tCO ₂ e/year	7.65%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<7-01>,<7-16>	☐ CAR ☐ CL ☒ OK	N/A	It has been confirmed that the Operational Period is selected according to SL16-95.
Installed Capacity	2*2000	kW	<7-01>,<7-02>,<7-16>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the project approval document, and the name plates of the water turbine generators have been verified during site assessment.
Total investment	2910	10 ⁴ CNY	<7-01>,<7-02>,<7-05>,<7-16>	☐ CAR ☐ CL ☒ OK	N/A	The total investment was verified as 29,100 thousand CNY according to Construction Accomplishment Acceptance Report.
Annual On-grid Output	15351.4	MWh	<7-01>,<7-02>,<7-05>,<7-16>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be selected according to the electricity receipts dated from 15 th December 2007 to 15 th December 2008.
Electricity tariff including VAT	0.23	CNY/kWh	<7-01>,<7-06>,<7-16>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be selected according to the electricity receipts dated from 15 th December 2007 to 15 th December 2008.
Annual O&M cost	25.8	10 ⁴ CNY	<7-01>,<7-16>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be in line with the PDR Page 13.
Income tax	25	%	<7-01>,<7-16>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<7-01>,<7-16>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Wulong County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surat for education expenses	3	%	<7-01>,<7-16>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm
City maintenance &	5	%	<7-01>,<7-16>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent

construction tax rate						with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
-----------------------	--	--	--	--	--	---

Document Review List:

- <7-01> Chongqing City Wulong County Water Resources and Electrical Construction Survey and Design Institute, Preliminary Design Report for Longqiao Hydroelectric Plant, April. 2002.
- <7-02> Daozhen Yilao&Miao Autonomous Development Planning bureau, The Approval Letter of Longqiao Hydroelectric Plant, May 14th. 2002.
- <7-03> Chongqing City Wulong County Environmental Protection Bureau, EIA Registration Form and Approval Letter of Longqiao Hydroelectric Plant, July 24th. 2005.
- <7-04> Chongqing City Wulong County Yongxin Electric Co., Ltd., Business License.
- <7-05> Daozhen County Construction Acceptance Committee, Construction Accomplishment Acceptance Report of Longqiao Hydroelectric Plant, March 18th. 2008.
- <7-06> Chongqing City Wulong County Yongxin Hydroelectric Co., Ltd., Power Connection Agreement, July 16th. 2005.
- <7-07> Chongqing Fuling Electric Power Industrial Co. Ltd., Calibration records of Electricity meters, December 15th. 2008.
- <7-08> Chongqing City Wulong County Haoyun Hydroelectric Co., Ltd., Daily and monthly reading records of Longqiao Hydroelectric Plant, June 16th. 2009.
- <7-09> Chongqing City Wulong County Haoyun Hydroelectric Co., Ltd., Monitoring manual of Longqiao Hydroelectric Plant, June 3rd. 2009.
- <7-10> Chongqing City Wulong County Haoyun Hydroelectric Co., Ltd., Staff Training Records, Jan. 2009.
- <7-11> Chongqing City Wulong County Banqiao Haoyun Hydroelectric Co., Ltd., Electrical Connection Scheme of Longqiao Hydroelectric Plant, June 2009.
- <7-12> South Pole Carbon Assets Management Co. Ltd. Monitoring report of Longqiao Hydroelectric Plant, June 2009.
- <7-13> South Pole Carbon Assets Management Co. Ltd. VCU calculation sheets Longqiao Hydroelectric Plant, Jan. 2006 to May 2009.
- <7-14> Chongqing Fuling Electric Power Industrial Co. Ltd., Electricity invoices, Jan. 2006 to May 2009.
- <7-15> South Pole Carbon Assets Management Ltd., Emission Reduction Purchasing Agreement, 15th Nov. 2008.
- <7-16> South Pole Carbon Assets Management Co. Ltd. IRR calculation spread sheet of Longqiao Hydroelectric Plant, 21st September 2009.
- <7-17> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <7-18> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <7-19> State Council, Statue on Enterprise Income Tax in China, 1993.
- <7-20> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <7-21> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
8th Sampling Project Title: Baiyang Hydroelectric Plant (Project No.69)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Chongqing City Grid (as part of Central China Power Grid)	Run-of-river	5.00MW	9822.5 tCO ₂ e/year	2.88%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<8-01>,<8-16>	☐ CAR ☐ CL ☒ OK	N/A	It has been confirmed that the Operational Period is selected according to SL16-95.
Installed Capacity	5000	kW	<8-01>,<8-02>,<8-16>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified as 5000kW by installing 2 units of 2500kW water turbine generators according to the project approval document, and the name plates of the water turbine generators have been verified during site assessment.
Total investment	2,450	10 ⁴ CNY	<8-01>,<8-02>,<8-06>,<8-16>	☐ CAR ☐ CL ☒ OK	N/A	The actual investment cost was verified as 24,500 thousand CNY according to the Construction Accomplishment Acceptance Report.
Annual On-grid Output	10089.9	MWh	<8-01>,<8-02>,<8-06>,<8-16>	☐ CAR ☐ CL ☒ OK	N/A	The on-grid output was confirmed to be selected according to the electricity receipts dated from 25 th December 2007 to 25 th December 2008.
Electricity tariff including VAT	0.22	CNY/kWh	<8-01>,<8-07>,<8-16>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be selected according to the electricity receipts dated from 25 th December 2007 to 25 th December 2008.
Annual O&M cost	32	10 ⁴ CNY	<8-01>,<8-16>	☐ CAR ☐ CL ☒ OK	N/A	It has been confirmed that the annual O&M cost was calculated according to SL16-95.
Income tax	25	%	<8-01>,<8-16>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<8-01>,<8-16>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Wulong County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surtax for education expenses	3	%	<8-01>,<8-16>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm

City maintenance & construction tax rate	5	%	<8-01>,<8-16>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
--	---	---	---------------	---	-----	--

Document Review List:

- <8-01> Chongqing City Wulong County Water Conservancy and Electric Power Construction Survey and Design Institute, Preliminary Design Report for Baiyang Hydroelectric Project, November 23rd, 2001.
- <8-02> Chongqing City Wulong County Water and Electrical Conservation Bureau, Approval Letter of Preliminary Design Report of Baiguo and Baiyang Hydroelectric Projects, December 17th, 2001.
- <8-03> Chongqing City Wulong County Environmental Protection Bureau, EIA Registration Form and Approval Letter of EIA Registration Form of Baiyang Hydroelectric Project, March 26th, 2002.
- <8-04> Chongqing City Wulong County Yuxiang Water Resources Development Co., Ltd., Business License.
- <8-05> Chongqing City Wulong County Baiyang Hydroelectric station, Monitoring structure of Baiyang Hydroelectric Project.
- <8-06> Chongqing City Wulong County Hydroelectric Project Completion Acceptance Committee, Construction Accomplishment Acceptance Report of Baiguo and Baiyang Hydroelectric Projects, February 4th, 2005.
- <8-07> Chongqing City Wulong County Yuxiang Water Resources Development Co., Ltd., Power Purchasing Agreement of Baiguo and Baiyang Hydroelectric Projects, July 27th, 2008.
- <8-08> Baiyang Hydroelectric Station, Daily and monthly reading records of Baiyang Hydroelectric Project, June 18th, 2009.
- <8-09> Chongqing City Wulong County Yuxiang Water Resources Development Co., Ltd., Monitoring manual of Baiyang Hydroelectric Project, June 3rd, 2009.
- <8-10> Baiyang Hydroelectric Station, Electrical Connection Scheme (copying screen) of Baiyang Hydroelectric Project, June 18th, 2009.
- <8-11> South Pole Carbon Assets Management Ltd., VCU calculation sheet of Baiyang Hydroelectric Project, from 2006 to 2009.
- <8-12> Chongqing City Wulong County Yuxiang Water Resources Development Co., Ltd., On-Grid Electricity and Tariff Statistical Table of Baiguo and Baiyang Hydroelectric Stations, from 2006 to 2008.
- <8-13> Chongqing City Wulong County Power Supply Limited Liability Company, Electricity Transaction Notes of Baiguo and Baiyang Hydroelectric Stations, January 2006 to April 2009.
- <8-14> Chongqing City Wulong County Yuxiang Water Resources Development Co., Ltd., Electricity Sales Receipts, February 2006 to May 2009.
- <8-15> South Pole Carbon Asset Management Ltd., Emission Reduction Purchasing Agreement, November 15th, 2008.
- <8-16> South Pole Carbon Assets Management Ltd., IRR calculation sheet of Baiyang Hydroelectric Project, 21st September 2009.
- <8-17> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <8-18> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <8-19> State Council, Statue on Enterprise Income Tax in China, 1993.
- <8-20> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <8-21> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
9th Sampling Project Title: Dahegou Hydroelectric Plant

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Chongqing City Grid (as part of Central China Power Grid)	Run-of-river	3.15MW	8513.3 tCO ₂ e/year	5.62%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<9-01>,<9-02>,<9-15>	☐ CAR ☐ CL ☒ OK	N/A	It has been confirmed that the Operational Period and the residue value rate are selected according to PDR.
Installed Capacity	5*630	kW	<9-01>,<9-02>,<9-06>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the project approval document, and the name plates of the water turbine generators have been verified during site assessment.
Total investment	1600	10 ⁴ CNY	<9-01>,<9-02>,<9-06>,<9-15>	☐ CAR ☐ CL ☒ OK	N/A	The total investment was verified as 16,000 thousand CNY the Construction Accomplishment Acceptance Report.
Annual On-grid Output	8745	MWh	<9-01>,<9-06>,<9-15>	☐ CAR ☐ CL ☒ OK	N/A	The on-grid output was confirmed to be selected according to the electricity receipts dated from 25 th December 2007 to 25 th December 2008.
Electricity tariff including VAT	0.235	CNY/kWh	<9-01>,<9-15>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be selected according to the electricity receipts dated from 25 th December 2007 to 25 th December 2008.
Annual O&M cost	42	10 ⁴ CNY	<9-01> ,<9-15>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be in line with the PDR.
Income tax	25	%	<9-01> ,<9-15>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<9-01> ,<9-15>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Wulong County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surtax for education expenses	3	%	<9-01> ,<9-15>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm
City maintenance & construction tax rate	5	%	<9-01> ,<9-15>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19)

<http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm>
Document Review List:

- <9-01> Chongqing City Fuling District Electric Power Management Station, Feasibility Study Report of Dahegou Hydroelectric Project, July 2004.
- <9-02> Tongzi County Development Planning Bureau, The Approval Letter of Feasibility Study Report of Dahegou Hydroelectric Project, July 21st, 2003.
- <9-03> Guizhou Province Environmental Science Study and Design Institute Environmental Technology Consultancy Center, EIA Report and Approval Letter of EIA Report of Dahegou Hydroelectric Project, December 10th, 2004 and February 4th, 2005.
- <9-04> Chongqing City Wulong County Fengyuan Jinhui Hydroelectric Development Co., Ltd., Business License.
- <9-05> Chongqing City Wulong County Fengyuan Jinhui Hydroelectric Development Co., Ltd., Plant Layout.
- <9-06> Tongzi County Hydroelectric Project Completion Acceptance Committee, Construction Accomplishment Acceptance Report of Dahegou Hydroelectric Project, March 12th, 2007.
- <9-07> Chongqing City Wulong County Fengyuan Jinhui Hydroelectric Development Co., Ltd., Power Purchasing Agreement, January 5th, 2009.
- <9-08> Chongqing City Wulong County Fengyuan Jinhui Hydroelectric Development Co., Ltd., Monitoring manual of Dahegou Hydroelectric Project, June 3rd, 2009.
- <9-09> Chongqing City Wulong County Fengyuan Jinhui Hydroelectric Development Co., Ltd., Electrical Connection Scheme of Dahegou Hydroelectric Project.
- <9-10> South Pole Carbon Assets Management Ltd., VCU calculation sheet of Dahegou Hydroelectric Project, from 2007 to 2009.
- <9-11> Chongqing City Wulong County Fengyuan Jinhui Hydroelectric Development Co., Ltd., On-Grid Electricity and Tariff Statistical Table of Dahegou Hydroelectric Station, from 2007 to 2008.
- <9-12> Chongqing City Nanchuan Power Supply Limited Liability Company, Electricity Transaction Notes of Dahegou Hydroelectric Station, May 2007 to May 2009.
- <9-13> Chongqing City Wulong County Fengyuan Jinhui Hydroelectric Development Co., Ltd., Electricity Sales Receipts, May 2007 to May 2009.
- <9-14> South Pole Carbon Asset Management Ltd., Emission Reduction Purchasing Agreement, November 15th, 2008.
- <9-15> South Pole Carbon Assets Management Ltd., IRR calculation sheet of Dahegou Hydroelectric Project, 21st September 2009.
- <9-16> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <9-17> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <9-18> State Council, Statue on Enterprise Income Tax in China, 1993.
- <9-19> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <9-20> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
10th Sampling Project Title: Chongqing Wanzhou Xianfeng Hydroelectric Plant (Project No.21)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Chongqing City Grid (as part of Central China Power Grid)	Run-of-river	3.60MW	9452.9 tCO ₂ e/year	4.55%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<10-01>,<10-17>	☐ CAR ☐ CL ☒ OK	N/A	It has been confirmed that the Operational Period and the residue value rate are selected according to PDR.
Installed Capacity	2*1800	kW	<10-01>,<10-02><10-06>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the project approval document, and the name plates of the water turbine generators have been verified during site assessment.
Total investment	2500	10 ⁴ CNY	<10-01>,<10-02><10-06><10-17>	☐ CAR ☐ CL ☒ OK	N/A	The total investment was verified as 25,000 thousand CNY in the Construction Accomplishment Acceptance Report.
Annual On-grid Output	9710.2	MWh	<10-01>,<10-02><10-06><10-17>	☐ CAR ☐ CL ☒ OK	N/A	The on-grid output was confirmed to be selected according to the electricity receipts from January 2008 to December 2008.
Electricity tariff including VAT	0.25	CNY/kWh	<10-01>,<10-07>,<10-17>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be selected according to the electricity receipts dated from 25 th December 2007 to 25 th December 2008.
Annual O&M cost	72.7	10 ⁴ CNY	<10-01>,<10-17>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be calculated according to the FSR.
Income tax	25	%	<10-01>,<10-17>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<10-01>,<10-17>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Wanzhou County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Suratx for education expenses	3	%	<10-01>,<10-17>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm
City maintenance & construction tax rate	5	%	<10-01>,<10-17>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19)

					http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
Document Review List:					
<10-01>	Chongqing City the Three Gorges Water Resources and Electrical Construction Survey and Design Institute, Preliminary Design Report for Xianfeng Hydroelectric Plant, Nov. 2004.				
<10-02>	Chongqing City Wanzhou District water Resources Bureau, The Approval Letter of Xianfeng Hydroelectric Plant, Nov. 29th. 2004.				
<10-03>	Chongqing City Wanzhou District Environmental Protection Research Institute, EIA Report of xianfeng Hydroelectric Plant, Feb. 2006				
<10-04>	Chongqing City Wanzhou District Environmental Protection Bureau, approval letter Report of xianfeng Hydroelectric Plant, Feb 23rd. 2006				
<10-05>	Chongqing City Wanzhou District Xianfeng Hydroelectric Plant, Business License.				
<10-06>	Chongqing City Wanzhou District Construction Acceptance Committee, Construction Accomplishment Acceptance Report of Xianfeng Hydroelectric Plant, October 15 th 2007.				
<10-07>	Chongqing City Wanzhou District Xianfeng Hydroelectric Plant, Power Purchasing Agreement, July 4th. 2007.				
<10-08>	Chongqing Theree Gorges Water Conservancy and Electric Power Co. Ltd. Calibration records of Electricity meters, Dec. 13th. 2007.				
<10-09>	Chongqing City Wanzhou District Xianfeng Hydroelectric Plant., Daily and monthly reading records of Xianfeng Hydroelectric Plant, 2009.				
<10-10>	Chongqing City Wulong County Haoyun Hydroelectric Plant., Monitoring manual of Xianfeng Hydroelectric Plant, June 3rd. 2009.				
<10-11>	Chongqing City Wanzhou District Xianfeng Hydroelectric Plant, Staff Training Records, June 2009.				
<10-12>	Chongqing City Wanzhou district Xianfeng Hydroelectric Plant., Electrical Connection Scheme of Xianfeng Hydroelectric Plant, June 2009.				
<10-13>	South Pole Carbon Assets Management Co. Ltd. Monitroing report of Xianfeng Hydroelectric Plant, June 2009.				
<10-14>	South Pole Carbon Assets Management Co. Ltd. VCU calculation sheets Xianfeng Hydroelectric Plant, April 2007 to May 2009.				
<10-15>	Chongqing City Wanzhou District Xianfeng Hydroelectric Plant., Electricity invoices, April 2007 to May 2009.				
<10-16>	South Pole Carbon Assets Management Ltd., Emission Reduction Purchasing Agreement, 16th Nov. 2008.				
<10-17>	South Pole Carbon Assets Management Co. Ltd. IRR calculation spread sheet of Xianfeng Hydroelectric Plant, 21 st September 2009.				
<10-18>	Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)				
<10-19>	Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31 st December 2008.				
<10-20>	State Council, Statue on Enterprise Income Tax in China, 1993.				
<10-21>	Chinese Government, Enterprise Income Tax Law, 16 th March 2007.				
<10-22>	State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.				

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects

11th Sampling Project Title: Mayihe Hydroelectric Plant (Project No.78)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Sichuan Provincial Grid (as part of Central China Power Grid)	Run-of-river	1.26MW	6171.9 tCO ₂ e/year	8.53%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<11-01>,<11-18>	☐ CAR ☐ CL ☒ OK	N/A	The Operational Period and residue value rate (i.e. 30%) was confirmed to be selected according to the PDR.
Installed Capacity	2*630	kW	<11-01>,<11-02>,<11-08>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the name plates of the water turbine generators have been verified during site assessment.
Total investment	3808.656	10 ⁴ CNY	<11-01>,<11-02>,<11-08>,<11-18>	☐ CAR ☐ CL ☒ OK	N/A	The total investment was verified to be consistent with the Construction Accomplishment Acceptance Report.
Annual On-grid Output	6,339.9	MWh	<11-01> ,<11-08>,<11-18>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be calculated according to the electricity receipts from January 2008 to December 2008.
Electricity tariff including VAT	0.125	CNY/kWh	<11-01> ,<11-08>,<11-09>,<11-18>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be calculated according to the electricity receipts from January 2008 to December 2008.
Annual O&M cost	26.8	10 ⁴ CNY	<11-01> ,<11-08> ,<11-18>	☐ CAR ☒ CL ☐ OK The project proponents are requested to provide supporting evidence on how the input values of employees, average salary and welfare rate were determined.	The supporting evidence on how the input values of employees, average salary and welfare rate have been provided.	☒ Closed ☐ Pending The supporting evidence has been received and checked to be consistent with the IRR calculation.
Income tax	25	%	<10-01>,<10-17>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<10-01>,<10-17>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Ya'an County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surtax for education expenses	3	%	<10-01>,<10-17>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm

City maintenance & construction tax rate	5	%	<10-01>,<10-17>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
--	---	---	-----------------	---	-----	--

Document Review List:

- <11-01> Water conservancy bureau of Yingjing County, PDR of Yingjing County Myihe Hydropower station, April 8th 2003.
- <11-02> Development Planning Bureau of Yingjing County, PDR Approval of Yingjing County Myihe Hydropower station, April 9th 2003.
- <11-03> School of Environmental Science and Engineering of Southwest Jiaotong University,EIA of Yingjing County Myihe Hydropower station, December 7th 2003.
- <11-04> Environmental protection bureau of Yingjing City,EIA Approval of Yingjing County Myihe Hydropower station, December 20th, 2003.
- <11-05> Administrative Bureau for Industry and Commerce Of Yingjing, Ya'an, Business License, May 3th, 2009.
- <11-06> Yingjing County Myihe Hydropower station, Monitoring Structure,May, 2009.
- <11-07> Yingjing County Myihe Hydropower station, Plant Layout.
- <11-08> Yingjing Substation of Beijing Hongri Accounting Firm, Financial Closure Report for Construction Accomplishment, May 2006.
- <11-09> Sichuan Yingjing Power Co., Ltd., Power Purchasing Agreement of Yingjing County Myihe Hydropower station, December 13th 2004.
- <11-10> Sichuan Yingjing Power Co., Ltd., Calibration Record, April 16th 2009.
- <11-11> Yingjing County Myihe Hydropower station, Daily and Monthly Reading Records.
- <11-12> Yingjing County Myihe Hydropower station, Monitoring Mannual, May, 2009.
- <11-13> Yingjing County Myihe Hydropower station, Electrical Connection Scheme.
- <11-14> Bureau of Quality and Technical Supervision of Ya'an in Sichuan,Certificate of Calibration Entity, August 14th 2008.
- <11-15> SouthPole Carbon Assesment Ltd.,VCU Calculation Sheets,2009.
- <11-16> Sichuan Yingjing Power Co., Ltd.,Electricity Invoice.
- <11-17> Swiss Carbon Value Ltd., Emission Reduction Purchasing Agreement, November 12th,2008.
- <11-18> SouthPole Carbon Assesment Ltd., IRR Calculation Sheets, 21st September 2009
- <11-19> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <11-20> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <11-21> State Council, Statue on Enterprise Income Tax in China, 1993.
- <11-22> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <11-23> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects

12th Sampling Project Title: Qingshuihe Stage I Hydroelectric Plant (Project No.82)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Sichuan Provincial Grid (as part of Central China Power Grid)	Run-of-river	5.0MW	22,407 tCO ₂ e/year	5.68%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<12-01>,<12-02>,<12-17>	☐ CAR ☐ CL ☒ OK	N/A	The Operational Period and residue value rate (i.e. 30%) was confirmed to be selected according to the PDR.
Installed Capacity	2*2500	kW	<12-01>,<12-02>,<12-07>,<12-17>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the capacity approval and name plates of the water turbine generators have been verified during site assessment.
Total investment	2830.71	10 ⁴ CNY	<12-01>,<12-02>,<12-07>,<12-17>	☐ CAR ☒ CL ☐ OK The total investment cost is not consistent with the Construction Accomplishment Auditing Report (i.e. 28,913 thousand CNY). Please clarify for such inconsistency.	The value of 28,913 thousand CNY from the Construction Accomplishment Auditing Report has been used in the revised PD and IRR calculation. The value of 2830.71 was a mistake value.	☒ Closed ☐ Pending The total investment has been revised to be consistent with the Construction Accomplishment Auditing Report.
Annual On-grid Output	23,017	MWh	<12-01>,<12-07>,<12-17>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be calculated according to the electricity receipts from January 2007 to December 2007.
Electricity tariff including VAT	0.15	CNY/kWh	<12-01>,<12-08>,<12-17>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be calculated according to the electricity receipts from January 2007 to December 2007.
Annual O&M cost	77.3	10 ⁴ CNY	<12-01>,<12-17>	☐ CAR ☒ CL ☐ OK The project proponents are requested to provide supporting evidence on how the input values of employees, average salary and welfare rate were determined.	The supporting evidence on how the input values of employees, average salary and welfare rate were determined have been provided.	☒ Closed ☐ Pending The supporting evidence has been received and checked to be consistent with the IRR calculation.
Income tax	25	%	<12-01>,<12-17>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<12-01>,<12-17>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Ya'an County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surat for education expenses	3	%	<12-01>,<12-17>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/con

						tent_91662.htm
City maintenance & construction tax rate	5	%	<12-01> ,<12-17>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm

Document Review List:

- <12-01> Water Conservancy Bureau of Yingjing County, PDR of Sichuan Yingjing Yunwushan Hydropower Co., Ltd., August 2003.
- <12-02> Development Planning Bureau of Yingjing County, PDR Approval on April 10th 2003 and Approval of Capacity Enlargement on 9th December 2004.
- <12-03> Environment Technology Service Department of Ya'an,EIA of Sichuan Yingjing Yunwushan Hydropower Co.,Ltd., September 6th 2003.
- <12-04> Environmental protection bureau of Yingjing City,EIA Approval of Sichuan Yingjing Yunwushan Hydropower Co., Ltd., December 4th, 2003.
- <12-05> Administrative Bureau for Industry and Commerce Of Yingjing, Ya'an, Business License, September 24th, 2009.
- <12-06> Sichuan Yingjing Yunwushan Hydropower Co., Ltd., Monitoring Structure,May 2009.
- <12-07> Yingjing Substation of Beijing Hongri Accounting Firm, Construction Accomplishment Auditing Report, March 2006.
- <12-08> Sichuan Yingjing Yunwushan Hydropower Co., Ltd., Power Purchasing Agreement of Sichuan Yingjing Yunwushan Hydropower Co., Ltd., November16th 2006.
- <12-09> Sichuan Yingjing Yunwushan Hydropower Co., Ltd., Calibration Record, May 27th 2009.
- <12-10> Sichuan Yingjing Yunwushan Hydropower Co., Ltd., Daily and Monthly Reading Records.
- <12-11> Sichuan Yingjing Yunwushan Hydropower Co., Ltd., Monitoring Mannual, May, 2009.
- <12-12> Sichuan Yingjing Yunwushan Hydropower Co., Ltd., Electrical Connection Scheme.
- <12-13> Bureau of Quality and Technical Supervision of Ya'an in Sichuan,Certificate of Calibration Entity, August 14th 2008.
- <12-14> SouthPole Carbon Assesment Ltd.,VCU Calculation Sheets,2009.
- <12-15> Sichuan Yingjing Power Co., Ltd.,Electricity Invoice.
- <12-16> Swiss Carbon Value Ltd., Emission Reduction Purchasing Agreement, November 12th,2008.
- <12-17> SouthPole Carbon Assesment Ltd., IRR Calculation Sheets,2009.
- <12-18> Sichuan Yingjing Power Co., Ltd.,Electricity Invoice.
- <12-19> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <12-20> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <12-21> State Council, Statue on Enterprise Income Tax in China, 1993.
- <12-22> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <12-23> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
13th Sampling Project Title: Daihuanggou Hydroelectric Plant (Project No.85)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Sichuan Provincial Grid (as part of Central China Power Grid)	Run-of-river	8.0MW	30,461 tCO ₂ e/year	7.56%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<13-01>,<13-02>,<13-17>	☐ CAR ☐ CL ☒ OK	N/A	The Operational Period and residue value rate (i.e. 30%) was confirmed to be selected according to the PDR.
Installed Capacity	2*4000	kW	<13-01>,<13-02>,<13-17>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the capacity enlargement approval letter and the name plates of the water turbine generators have been verified during site assessment.
Total investment	3129.4	10 ⁴ CNY	<13-01>,<13-02>,<13-07>,<13-17>	☐ CAR ☐ CL ☒ OK	N/A	The total investment was confirmed to be consistent with the Construction Accomplishment Auditing Report in March 2006.
Annual On-grid Output	31,290	MWh	<13-01>,<13-08>,<13-17>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be calculated according to the electricity receipts from January 2008 to December 2008.
Electricity tariff including VAT	0.142	CNY/kWh	<13-01>,<13-08>,<13-17>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be calculated according to the electricity receipts from January 2008 to December 2008.
Annual O&M cost	57.3	10 ⁴ CNY	<13-01> ,<13-17>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be calculated according to the PDR.
Income tax	25	%	<13-01>,<13-17>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<13-01>,<13-17>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Ya'an County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Suratx for education expenses	3	%	<13-01>,<13-17>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm

City maintenance & construction tax rate	5	%	<13-01>,<13-17>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
--	---	---	-----------------	---	-----	--

Document Review List:

- <13-01> Water conservancy bureau of Yingjing County, PDR of Daihuanggou Hydroelectric Plant, October 8th 2004.
- <13-02> Development Planning Bureau of Yingjing County, PDR Approval of Daihuanggou Hydroelectric Plant on July 8th 2003 and Approval of Capacity Enlargement on 15th September 2004.
- <13-03> Environment Technology Service Department of Ya'an,EIA of Sichuan Yingjing Yunwushan Hydropower Co.,Ltd., July 28th 2003.
- <13-04> Environmental protection bureau of Yingjing City,EIA Approval of Daihuanggou Hydroelectric Plant, August 26th, 2003.
- <13-05> Administrative Bureau for Industry and Commerce Of Yingjing, Ya'an, Business License, June 17th, 2008.
- <13-06> Daihuanggou Hydroelectric Plant, Monitoring Structure,May, 2009.
- <13-07> Yingjing Substation of Beijing Hongri Accounting Firm, Construction Accomplishment Auditing Report, March 2006.
- <13-08> Daihuanggou Hydroelectric Plant, Power Purchasing Agreement of Daihuanggou Hydroelectric Plant, March 25th 2004
- <13-09> Daihuanggou Hydroelectric Plant, Calibration Record, April 14th 2009.
- <13-10> Daihuanggou Hydroelectric Plant, Daily and Monthly Reading Records.
- <13-11> Daihuanggou Hydroelectric Plant, Monitoring Mannual, May, 2009.
- <13-12> Daihuanggou Hydroelectric Plant, Electrical Connection Scheme.
- <13-13> Bureau of Quality and Technical Supervision of Ya'an in Sichuan,Certificate of Calibration Entity, August 14th 2008.
- <13-14> SouthPole Carbon Assesment Ltd.,VCU Calculation Sheets,2009.
- <13-15> Sichuan Yingjing Power Co., Ltd.,Electricity Invoice.
- <13-16> Swiss Carbon Value Ltd., Emission Reduction Purchasing Agreement, November 16th,2008.
- <13-17> SouthPole Carbon Assesment Ltd., IRR Calculation Sheets,2009.
- <13-18> Sichuan Yingjing Power Co., Ltd.,Electricity Invoice.
- <13-19> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <13-20> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <13-21> State Council, Statue on Enterprise Income Tax in China, 1993.
- <13-22> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <13-23> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
14th Sampling Project Title: Gaoqiaohe Hydroelectric Plant (Project No.86)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Sichuan Provincial Grid (as part of Central China Power Grid)	Run-of-river	9.6MW	53,262 tCO ₂ e/year	9.22%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	21	Years	<14-01>,<14-02>,<14-18>	☐ CAR ☐ CL ☒ OK	N/A	The Operational Period and residue value rate (i.e. 30%) was confirmed to be selected according to the PDR.
Installed Capacity	9600	kW	<14-01>,<14-02>,<14-08>,<14-18>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the name plates of the water turbine generators have been verified during site assessment.
Total investment	4590.57	10 ⁴ CNY	<14-01>,<14-02>,<14-08> ,<14-18>	☐ CAR ☐ CL ☒ OK	N/A	The total investment was confirmed to be consistent with the Construction Accomplishment Auditing Report in March 2006.
Annual On-grid Output	54712.7	MWh	<14-01>,<14-02>,<14-08> ,<14-18>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be calculated according to the electricity receipts from January 2007 to December 2007.
Electricity tariff including VAT	0.15	CNY/kWh	<14-01>,<14-02>,<14-09>,<14-18>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be calculated according to the electricity receipts from January 2007 to December 2007.
Annual O&M cost	125.5	10 ⁴ CNY	<14-01>,<14-18>	☐ CAR ☒ CL ☐ OK The project proponents are requested to provide supporting evidence on how the input values of employees, average salary and welfare rate were determined.	The supporting evidence on how the input values of employees, average salary and welfare rate were determined have been provided.	☒ Closed ☐ Pending The supporting evidence has been received and checked to be consistent with the IRR calculation.
Income tax	25	%	<14-01>,<14-18>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<14-01>,<14-18>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Ya'an County, the VAT should be 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Suratx for education expenses	3	%	<14-01>,<14-18>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/con

						tent_91662.htm
City maintenance & construction tax rate	5	%	<14-01>,<14-18>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm

Document Review List:

- <14-01> Hydroelectric Board of Yingjing County, PDR of Gaoqiaohe Hydroelectric Plant, November 2001.
- <14-02> Development Planning Bureau of Yingjing County, PDR Approval of Gaoqiaohe Hydroelectric Plant, February 4th 2002.
- <14-03> Environment Technology Service Department of Ya'an,EIA of Sichuan Yingjing Yunwushan Hydropower Co.,Ltd., May 14th 2002.
- <14-04> Environmental protection bureau of Yingjing City,EIA Approval of Gaoqiaohe Hydroelectric Plant, May 28th, 2002.
- <14-05> Administrative Bureau for Industry and Commerce Of Yingjing, Ya'an, Business License, April 17th, 2008.
- <14-06> Gaoqiaohe Hydroelectric Plant, Monitoring Structure,May, 2009.
- <14-07> Gaoqiaohe Hydroelectric Plant, Plant Layout.
- <14-08> Yingjing Auditing Bureau, Construction Accomplishment Auditing Report, March 10th 2006.
- <14-09> Gaoqiaohe Hydroelectric Plant, Power Purchasing Agreement of Gaoqiaohe Hydroelectric Plant, November 2003.
- <14-10> Gaoqiaohe Hydroelectric Plant, Calibration Record, May 27th 2009.
- <14-11> Gaoqiaohe Hydroelectric Plant, Daily and Monthly Reading Records.
- <14-12> Gaoqiaohe Hydroelectric Plant, Monitoring Mannual, May, 2009.
- <14-13> Gaoqiaohe Hydroelectric Plant, Electrical Connection Scheme.
- <14-14> Bureau of Quality and Technical Supervision of Ya'an in Sichuan,Certificate of Calibration Entity, August 14th 2008.
- <14-15> SouthPole Carbon Assesment Ltd.,VCU Calculation Sheets,2009.
- <14-16> Sichuan Yingjing Power Co., Ltd.,Electricity Invoice.
- <14-17> Swiss Carbon Value Ltd., Emission Reduction Purchasing Agreement, November 16th,2008.
- <14-18> SouthPole Carbon Assesment Ltd., IRR Calculation Sheets,2009.
- <14-19> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <14-20> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <14-21> State Council, Statue on Enterprise Income Tax in China, 1993.
- <14-22> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <14-23> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
15th Sampling Project Title: Guizhou Province Xingyi City Puti 2nd Stage (Xiniutang) Hydropower Plant Technical Reform Project (Project No.75)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Guizhou Provincial Grid (as part of China Southern Power Grid)	Run-of-river	9.50MW	36,623 tCO ₂ e/year	8.52%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<15-01>,<15-02>,<15-03>,<15-07>,<15-08>,<15-14>	☐ CAR ☐ CL ☒ OK	N/A	The Operational Period and residue value rate was confirmed to be selected according to the FSR.
Installed Capacity	2*3500+1*2500	kW	<15-01>,<15-02>,<15-03>,<15-07>,<15-14>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with the name plates of the water turbine generators have been verified during site assessment.
Total investment	5369	10 ⁴ CNY	<15-01>,<15-02>,<15-03>,<15-07>,<15-14>	☐ CAR ☐ CL ☒ OK	N/A	The total investment was confirmed to be consistent with the Financial Audit Report on 10 th March 2006.
Annual On-grid Output	42040	MWh	<15-01>,<15-02>,<15-03>,<15-07>,<15-14>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be calculated according to the electricity receipts from January 2007 to December 2007.
Electricity tariff excluding VAT	0.18	CNY/kWh	<15-01>,<15-08>,<15-14>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be consistent with Power Purchasing Agreement signed on 26 th March 2008.
Annual O&M cost	96.1	10 ⁴ CNY	<15-01>,<15-02>,<15-03>,<15-14>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be calculated according to the FSR.
Income tax	25	%	<15-01>,<15-14>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<15-01>,<15-14>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in small county, the VAT is 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surtax for education expenses	3	%	<15-01>,<15-14>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm

City maintenance & construction tax rate	5	%	<15-01>, <15-14>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
--	---	---	------------------	---	-----	--

Document Review List:

- <15-01> Research and Technology College of The China Fourteenth Hydro Electrical Power Engineering Bureau, Preliminary Design Report of Guizhou Province Xingyi City Puti 2nd Stage (Xiniutang) Hydropower Plant Technical Reform Project, 2002.
- <15-02> Economy and Trade Committee of Guizhou Province, Approval Letter of Preliminary Design Report of Guizhou Province Xingyi City Puti 2nd Stage (Xiniutang) Hydropower Plant Technical Reform Project, August 2002.
- <15-03> Economy and Trade of Committee of Guizhou Province, Approval Letter of Added Capacity of Guizhou Province Xingyi City Puti 2nd Stage (Xiniutang) Hydropower Plant Technical Reform Project, September 2006.
- <15-04> Environmental Protection Bureau, EIA of Guizhou Province Xingyi City Puti 2nd Stage (Xiniutang) Hydropower Plant Technical Reform Project, December 2003.
- <15-05> South-West Guizhou Environmental Protection Bureau, Approval Letter of EIA Report of Guizhou Province Xingyi City Puti 2nd Stage (Xiniutang) Hydropower Plant Technical Reform Project, 2003
- <15-06> Xingyi City Puti Power Co. Ltd. Business license
- <15-07> Guizhou Renxing Certified Public Accountants, Financial Audit Report, 12th April 2008
- <15-08> Xingyi City Puti Power Co. Ltd., Power Purchasing Agreement of the Project, 26th March 2008.
- <15-09> Xingyi Electrical Power Co. Ltd., Calibration Report, June 2004
- <15-10> Guizhou Province Xingyi City Puti 2nd Stage (Xiniutang) Hydropower Plant Technical Reform Project, Daily and Monthly Reading Records, 23rd June 2009
- <15-11> Guizhou Province Xingyi City Puti 2nd Stage (Xiniutang) Hydropower Plant Technical Reform Project, Monitoring Manual
- <15-12> Guizhou Province Xingyi City Puti 2nd Stage (Xiniutang) Hydropower Plant Technical Reform Project, Staff Training Plan, 10th May 2009.
- <15-13> South Pole Carbon Asset Management Ltd., Emission Reduction Purchasing Agreement, 6th November 2008.
- <15-14> SouthPole Carbon Assesment Ltd., IRR Calculation Sheets, 2009.
- <15-15> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <15-16> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <15-17> State Council, Statue on Enterprise Income Tax in China, 1993.
- <15-18> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <15-19> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
16th Sampling Project Title: Zhenyuan County Xiaojiehe Hydropower Project (Project No.94)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Yunnan Provincial Grid (as part of China Southern Power Grid)	Run-of-river	5.0 MW	11,922.1 tCO ₂ e/year	2.12 %

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	30	Years	<16-01>,<16-02>,<16-08>	☐ CAR ☐ CL ☒ OK	N/A	The Operational Period and residue value rate was confirmed to be selected according to the FSR.
Installed Capacity	2*2500	kW	<16-01>,<16-02>,<16-11>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with approval letter and the name plates of the water turbine generators have been verified during site assessment.
Total investment	2680	10 ⁴ CNY	<16-01>,<16-02>,<16-08>,<16-11>	☐ CAR ☐ CL ☒ OK	N/A	The total investment is verified as 26,800 thousand CNY according to Construction Accomplishment Acceptance Report.
Annual On-grid Output	13,684.7	MWh	<16-01>,<16-02>,<16-08>,<16-11>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be calculated according to the electricity receipts from April 2008 to March 2009.
Electricity tariff excluding VAT	0.154	CNY/kWh	<16-01> ,<16-07>,<16-08>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be calculated according to the electricity receipts from April 2008 to March 2009.
Annual O&M cost	48.2	10 ⁴ CNY	<16-01> ,<16-08>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be calculated according to the FSR.
Income tax	25	%	<16-01> ,<16-08>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<16-01> ,<16-08>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Zhenyuan County, the VAT was 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surtax for education expenses	3	%	<16-01> ,<16-08>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm
City maintenance &	5	%	<16-01> ,<16-08>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent

construction tax rate			08>			with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
Document Review List: <16-01> Zhenyuan County Water Resources and Electrical Construction Survey and Design Group, Feasibility Study Report of Zhenyuan County Xiaojiehe Hydropower Station, August 2004. <16-02> Zhenyuan County Development and Plan Bureau, Approval Letter of Feasibility Study Report of Zhenyuan County Xiaojiehe Hydropower Station 20th October 2004. <16-03> Environmental Science Institute of Simao City, EIA Report of Zhenyuan County Xiaojiehe Hydropower Station, July 2005. <16-04> Simao City Environmental Protection Bureau, Approval Letter of EIA Report of Zhenyuan County Xiaojiehe Hydropower Station, 15th March 2006. <16-05> South Pole Carbon Asset Mgt. Ltd, Emission Reduction Purchasing Agreement, 12th September 2008. <16-06> Zhenyuan Yi, Lahu Autonomous County Xiaojiehe Hydropower Co., Ltd. Business License. <16-07> Zhenyuan Yi, Lahu Autonomous County Xiaojiehe Hydropower Co., Ltd., Power Purchasing Agreement of the Project, 1st January 2009. <16-08> South Pole Carbon Asset Mgt. Ltd, IRR calculation spread sheet, 20th May 2009. <16-09> Zhenyuan Yi, Lahu Autonomous County Xiaojiehe Hydropower Co., Ltd., Questionnaires and Stakeholder Interview Records, May 2008. <16-10> Zhenyuan Yi, Lahu Autonomous County Xiaojiehe Hydropower Co., Ltd., Land Compensation Agreements, September 2008. <16-11> Pu'er City Development and Reform Committee, Construction Accomplishment Acceptance Report of Zhenyuan County Xiaojiehe Hydropower Station, 15th May 2009. <16-12> Zhenyuan Yi, Lahu Autonomous County Xiaojiehe Hydropower Co., Ltd., Staff Training Records, 2006, 2007 and 2008. <16-13> China Southern Power Grid, Calibration Record of Zhenyuan County Xiaojiehe Hydropower Station, Valid till 24th October, 2010. <16-14> Zhenyuan Yi, Lahu Autonomous County Xiaojiehe Hydropower Co., Ltd., Daily and Monthly Reading Records of Zhenyuan County Xiaojiehe Hydropower Station. <16-15> Zhenyuan Yi, Lahu Autonomous County Xiaojiehe Hydropower Co., Ltd., Monitoring Manual of Zhenyuan County Xiaojiehe Hydropower Station. <16-16> Zhenyuan Yi, Lahu Autonomous County Xiaojiehe Hydropower Co., Ltd., Electricity Invoices of Zhenyuan County Xiaojiehe Hydropower Station. <16-17> SouthPole Carbon Assesment Ltd.,VCU Calculation Sheets,2009. <16-18> Sichuan Yingjing Power Co., Ltd.,Electricity Invoice. <16-19> Swiss Carbon Value Ltd., Emission Reduction Purchasing Agreement, November 16th,2008. <16-20> SouthPole Carbon Assesment Ltd., IRR Calculation Sheets,2009. <16-21> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95) <16-22> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008. <16-23> State Council, Statue on Enterprise Income Tax in China, 1993. <16-24> Chinese Government, Enterprise Income Tax Law, 16th March 2007. <16-25> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.						

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
17th Sampling Project Title: Yingjiang Husa River 5th Stage Hydropower Project (Project No.96)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Yunnan Provincial Grid (as part of China Southern Power Grid)	Run-of-river	8.0 MW	29862.7 tCO ₂ e/year	7.37%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<17-01>,<17-02>,<17-06>,<17-13>	☐ CAR ☐ CL ☒ OK	N/A	The Operational Period and residue value rate was confirmed to be selected according to the FSR.
Installed Capacity	2*4000	kW	<17-01>,<17-02>,<17-06>,<17-13>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with approval letter and the name plates of the water turbine generators have been verified during site assessment.
Total investment	3412.11	10 ⁴ CNY	<17-01>,<17-02>,<17-06>,<17-13>	☐ CAR ☐ CL ☒ OK	N/A	The actual investment cost is verified as 34,121 thousand CNY according to the Construction Accomplishment Acceptance Report.
Annual On-grid Output	29,862.7	MWh	<17-01> ,<17-06>,<17-13>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be calculated according to the electricity receipts from January 2007 to December 2007.
Electricity tariff excluding VAT	0.16	CNY/kWh	<17-01> ,<17-06>,<17-07>,<17-13>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be calculated according to the electricity receipts from January 2007 to December 2007.
Annual O&M cost	160.7	10 ⁴ CNY	<17-01> ,<17-06> ,<17-13>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be calculated according to the FSR.
Income tax	25	%	<17-01> ,<17-06> ,<17-13>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007.
Value added tax(VAT)	6	%	<17-01> ,<17-06> ,<17-13>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Yingjiang County, the VAT was 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surtax for education expenses	3	%	<17-01> ,<17-06> ,<17-13>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm
City maintenance &	5	%	<17-01> ,<17-06> ,<17-13>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent

construction tax rate			06> ,<17-13>			with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm
Document Review List: <17-01> The Electrical Power Design Institution of Yunnan Province, Preliminary Design Report of Yingjiang Husa River 5th Stage Hydropower Plant Project, January 2004. <17-02> Development and Reform Commission of Dehong Autonomous Prefecture, Approval Letter of Preliminary Design Report of Yingjiang Husa River 5th Stage Hydropower Plant Project, March 2004. <17-03> The Environmental Science Research Institution of Dehong Autonomous Prefecture, Yunnan Province, EIA of Yingjiang Husa River 5th Stage Hydropower Plant Project, March 2004. <17-04> Dehong Autonomous Prefecture Environmental Protection Bureau, Approval Letter of EIA Report of Yingjiang Husa River 5th Stage Hydropower Plant Project, 17th May 2004 <17-05> Yingjiang County Tianchao Hydropower Co. Ltd. Business license <17-06> Yingjiang Husa River 5th Stage Hydropower Plant Project Construction Acceptance Committee, Construction Accomplishment Acceptance Report, July 2008. <17-07> Yingjiang County Tianchao Hydropower Co. Ltd. Grid Connected Agreement of the Project, 17th September 2006. <17-08> Denghong Jincheng Electrical Metrology Equipment Test and Technology Co. Ltd., Calibration Report, May 2008 <17-09> Yingjiang Husa River 5th Stage Hydropower Plant Project, Daily and Monthly Reading Records, July 2009 <17-10> Yingjiang Husa River 5th Stage Hydropower Plant Project, Monitoring Mannual, <17-11> Yingjiang Husa River 5th Stage Hydropower Plant Project, Staff Training Plan, October 2008. <17-12> South Pole Carbon Asset Management Ltd., Emission Reduction Purchasing Agreement, 14th November 2008. <17-13> SouthPole Carbon Assesment Ltd., IRR Calculation Sheets, March 2009. <17-14> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95) <17-15> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008. <17-16> State Council, Statue on Enterprise Income Tax in China, 1993. <17-17> Chinese Government, Enterprise Income Tax Law, 16th March 2007. <17-18> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.						

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
18th Sampling Project Title: Fugong County Lishadi Hydropower Plant Project (Project No. 98)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Yunnan Provincial Grid (as part of China Southern Power Grid)	Run-of-river	14.0 MW	43435 tCO ₂ e/year	5.79%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<18-01>, <18-15>	☐ CAR ☐ CL ☒ OK	N/A	The Operational Period and residue value rate was confirmed to be selected according to the FSR.
Installed Capacity	2*7000	kW	<18-01>,<18-02>,<18-03>,<18-04>,<18-08>	☐ CAR ☐ CL ☒ OK	N/A	The installed capacity has been verified to be consistent with approval letter and the name plates of the water turbine generators have been verified during site assessment.
Total investment	7541	10 ⁴ CNY	<18-01>,<18-02>,<18-03>,<18-08>,<18-15>	☐ CAR ☒ CL ☐ OK	N/A	The total investment is verified as 75,410 thousand CNY according to construction accomplishment acceptance report.
Annual On-grid Output	49,860	MWh	<18-01>,<18-02>,<18-03>,<18-08>,<18-15>	☐ CAR ☐ CL ☒ OK	N/A	The annual on-grid output was confirmed to be calculated according to the electricity receipts from January 2008 to December 2008.
Electricity tariff excluding VAT	0.157	CNY/kWh	<18-01>,<18-02>,<18-03>,<18-09> ,<18-15>	☐ CAR ☐ CL ☒ OK	N/A	The tariff was confirmed to be calculated according to the electricity receipts from January 2008 to December 2008.
Annual O&M cost	148.9	10 ⁴ CNY	<18-01>,<18-02>,<18-03> ,<18-15>	☐ CAR ☐ CL ☒ OK	N/A	The annual O&M cost was confirmed to be calculated according to the FSR.
Income tax	25	%	<18-01>,<18-02>,<18-03> ,<18-15>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007. However, it is deemed to be reasonable to apply 33% at the time of investment decision according to Statue on Enterprise Income Tax in China, which is valid till 1 st January 2008.
Value added tax(VAT)	6	%	<18-01>,<18-02>,<18-03> ,<18-15>	☐ CAR ☐ CL ☒ OK	N/A	Since the Project is located in Fugong County, the VAT was 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.
Surtax for education expenses	3	%	<18-01>,<18-02>,<18-03> ,<18-15>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be consistent with the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/con

						tent_91662.htm
City maintenance & construction tax rate	1	%	<18-01>,<18-02>,<18-03> ,<18-15>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is valid and consistent with the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm

Document Review List:

- <18-01> Hydro Electrical Power Survey and Design Institution of Yunnan Province, Feasibility Study Report of Fugong County Lishadi Hydropower Plant Project, November 2003.
- <18-02> Hydro Electrical Power Survey and Design Institution of Yunnan Province, Feasibility Study Supplementary Report of Fugong County Lishadi Hydropower Plant, April 2004.
- <18-03> Hydro Electrical Power Survey and Design Institution of Yunnan Province, Capacity Enlargement Assesment Report of the Fugong County Lishadi Hydropower, August 2007
- <18-04> Development and Reform Commission of Yunnan Province, Approval Letter of Feasibility Study Report of Fugong County Lishadi Hydropower Plant, 25th June 2004.
- <18-05> Hydro Electrical Power Survey and Design Institution of Yunnan Province, EIA of Fugong County Lishadi Hydropower Plant, May 2004.
- <18-06> Nu Jiang Province Environmental Protection Bureau, Approval Letter of EIA Report of Fugong County Lishadi Hydropower Plant, 14th May 2004
- <18-07> Yunnan Fugong Huatai Electricity Development Co. Ltd. Business license
- <18-08> Lishadi Hydropower Project Construction Acceptance Committee, Construction Accomplishment Acceptance Report, August 2008
- <18-09> Yunnan Fugong Huatai Electricity Development Co. Ltd., Power Purchasing Agreement of the Project, 27th December 2007.
- <18-10> Yunnan Institution of Metrology Test Techonolgy, Calibration Report, March 2009
- <18-11> Fugong County Lishadi Hydropower Plant Project, Daily and Monthly Reading Records, July 2009
- <18-12> Fugong County Lishadi Hydropower Plant Project, Monitoring Mannual,
- <18-13> Fugong County Lishadi Hydropower Plant Project, Staff Training Plan, 10th May 2009.
- <18-14> South Pole Carbon Asset Management Ltd., Emission Reduction Purchasing Agreement, 6th March 2008.
- <18-15> South Pole Carbon Asset Management Ltd., IRR calculation spread sheet, March 2009.
- <18-16> Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
- <18-17> Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
- <18-18> State Council, Statue on Enterprise Income Tax in China, 1993.
- <18-19> Chinese Government, Enterprise Income Tax Law, 16th March 2007.
- <18-20> State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Annex to Table 2: Validation of “Ex-post Financial Analysis” for Sampling Projects
19th Sampling Project Title: Dashi Stage I Hydroelectric Project (Project No.89)

Provincial Grid	Project Type	Total Installed Capacity	Estimated Emission Reductions	Project IRR without VCU (after tax)
Yunnan Provincial Grid (as part of China Southern Power Grid)	Retrofitted	3.2 MW	7,639.6tCO ₂ e/year	9.74%

Parameters	Values	Unit	Reference	Observation (CAR/CL/OK)	Summary of project owner response	Validation team conclusion
Operational Period	20	Years	<19-01>,<19-11>	☐ CAR ☒ CL ☐ OK The Operational Period was consistent with the FSR. However, please substantiate how the residue value has been considered after 20-year operation.	This project has been withdrawn from the Grouped project.	All retrofitted projects (i.e. Project No. 17, 19 and 89) have been withdrawn and it was confirmed that there was no need to increase sampling for the Grouped Project.
Installed Capacity	3200	kW	<19-01>,<19-02>,<19-05>	☐ CAR ☒ CL ☐ OK The Project is verified as a retrofitted project expanding the installed capacity from 2*400 kW to 2*400kW+1*2500kW according to the FSR and FSR approval letter. The name plate of the water turbine generators has also been verified during site assessment. Please clarify how the installed capacity is determined. Furthermore, the gateway meter has been observed to be connected with the nearby 2*400 kW water turbine generators. Please clarify how the baseline is justified according to AMS.I.D version 13 and how monitoring of the emission reductions is implemented. Existing electricity invoices can not distinguish the on-grid electricity of the expanding 2,500 kW unit from the previously 2*400 kW units.	This project has been withdrawn from the Grouped project.	All retrofitted projects (i.e. Project No. 17, 19 and 89) have been withdrawn and it was confirmed that there was no need to increase sampling for the Grouped Project.
Total investment	2416	10 ⁴ CNY	<19-01>,<19-02>,<19-05>,<19-06>,<19-11>	☐ CAR ☒ CL ☐ OK Please clarify the data source of the applied investment cost.	This project has been withdrawn from the Grouped project.	All retrofitted projects (i.e. Project No. 17, 19 and 89) have been withdrawn and it was confirmed that there was no need to increase sampling for the Grouped Project.
Annual On-grid Output	19,320	MWh	<19-01>,<19-02>,<19-05>,<19-11>	☐ CAR ☒ CL ☐ OK The annual on-grid output was confirmed to be inconsistent with the FSR (i.e. 9,677 MWh), and please clarify the data source of the applied value.	This project has been withdrawn from the Grouped project.	All retrofitted projects (i.e. Project No. 17, 19 and 89) have been withdrawn and it was confirmed that there was no need to increase sampling for the Grouped Project.
Electricity tariff including VAT	0.21	CNY/kWh	<19-01>,<19-06>,<19-11>	☐ CAR ☐ CL ☒ OK	N/A	The electricity tariff was estimated as 0.20 CNY/kWh in the PDR, which is lower than the estimated tariff in the IRR spread sheet. The validation team therefore conclude the tariff has been reasonably estimated.

Annual O&M cost	40.7	10 ⁴ CNY	<19-01>,<19-11>	☐ CAR ☒ CL ☐ OK Please substantiate how operating and maintenance cost has been calculated during investment analysis, as this calculation method was not consistent with the FSR, which indicates the annual O&M cost should be 200.6 thousand CNY.	This project has been withdrawn from the Grouped project.	All retrofitted projects (i.e. Project No. 17, 19 and 89) have been withdrawn and it was confirmed that there was no need to increase sampling for the Grouped Project.
Income tax	33	%	<19-01>,<19-11>	☐ CAR ☐ CL ☒ OK	N/A	The income tax is regulated as 25% according to the Income Tax Law issued by Chinese Government on 16 th March 2007. However, it is deemed to be reasonable to apply 33% at the time of investment decision according to Statue on Enterprise Income Tax in China, which is valid till 1 st January 2008.
Value added tax(VAT)	17	%	<19-01>,<19-11>	☒ CAR ☐ CL ☐ OK Since the Project is located in Lincang County, the VAT was 6% for hydropower projects in county according to Notice on Regulating the VAT of Agricultural Products and Other Products, 29 th March 1994.	This project has been withdrawn from the Grouped project.	All retrofitted projects (i.e. Project No. 17, 19 and 89) have been withdrawn and it was confirmed that there was no need to increase sampling for the Grouped Project.
City maintenance & construction tax rate	3	%	<19-01>,<19-11>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be reasonable according to the State Council Order (Ref.: State Council Order[2005] no.448) http://www.gov.cn/gongbao/content/2005/content_91662.htm
Surtax for education expenses	5	%	<19-01>,<19-11>	☐ CAR ☐ CL ☒ OK	N/A	The applied tax rate is confirmed to be reasonable according to the State Tax Laws (Ref.: PRC City Construction and Maintenance Regulation GuoFa[1985]19) http://www.chinaacc.com/new/63/67/102/1985/2/ad19211101118258915951c.htm

Document Review List:

- <19-01> Hydro Electrical Power Survey and Design Institution of Yunnan Province, Preliminary Design Report of Dashi Stage I Hydroelectric Plant, Feb 2004.
- <19-02> Development and Reform Commission of Lincang City, Approval Letter of Preliminary Design Report of Dashi Stage I Hydroelectric Plant, 7th June 2006.
- <19-03> Environmental Science and Research Institution of Lincang City, EIA of Dashi Stage I Hydroelectric Plant, December 2004.
- <19-04> Lincang Runda Hydropower Co. Ltd. Business license.
- <19-05> Lincang Water Resources Bureau, Construction Accomplishment Acceptance Report, Dec 2006.
- <19-06> Lincang Runda Hydropower Co. Ltd., Power Purchasing Agreement of the Project, 2008.
- <19-07> Yunnan Power Grid, Lincang Power Supply Bureau, Calibration Report, March 2009.
- <19-08> Lincang Runda Hydropower Co. Ltd., Daily and Monthly Reading Records, July 2009.
- <19-09> Lincang Runda Hydropower Co. Ltd., Staff Training Plan, 2009.
- <19-10> South Pole Carbon Asset Management Ltd., Emission Reduction Purchasing Agreement, 12th November 2008.
- <19-11> South Pole Carbon Asset Management Ltd., IRR calculation Sheet, March 2009.

<19-12>	Ministry of Water Resources. Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)
<19-13>	Ministry of Water Resources, List of Current Effective Technical Standards of Water Resources, 31st December 2008.
<19-14>	State Council, Statute on Enterprise Income Tax in China, 1993.
<19-15>	Chinese Government, Enterprise Income Tax Law, 16th March 2007.
<19-16>	State Taxation Bureau, Notice on Regulating the VAT of Agricultural Products and Other Products, 29th March 1994.

Append B

CERTIFICATES OF COMPETENCE

Qualification

Ma, Libo /

Emission Trading

United Nations Framework Convention on Climate Change

Auditor No. :
(AuditorenRegNr)

Appointed: ☒ yes Qualification Level: Auditor
(Zugelassen) (Qualifikationsstufe)

External: ☐ yes Add. reviewer: ☐ yes
(Externer) (Zusätzlicher Prüfer)

EAC Scopes: CDM 01 - Energy industries (renewable - / non-renewable
(EAC Branchen) sources)

Add. qualification:
(zus. Qualifikation)

First Appointment: 2009-06-01 Valid to: 2012-05-31
(Erstberufung) (Gültig bis)

Remarks:

Languages: Chinese
English

Experience Exchange

Date	Location	Remarks	Accreditation (s)
------	----------	---------	-------------------

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next
Monitoring:
(nächste
Beurteilung)

Remarks:

[View / Edit Monitoring](#)

History of scope allocation

Date: 2009-06-02
Change: EAC CDM added
By: Manfred Brinkmann
Reason:

History

Created:	2008-03-20 15:44:05	Daxun Li/Bj/Chn/TUV
Modified:	2008-03-20 15:44:19	Daxun Li/Bj/Chn/TUV

Qualification

Zhu, Jiang /

Emission Trading

United Nations Framework Convention on Climate Change

Auditor No.:
(Auditor-ID/No.)

Appointed:
(Zugelassen)

☒

ja

Qualification Level: Auditor
(Qualifikationsstufe)

External:
(Extern)

☐

ja

Add. reviewer:
(Zusätzlicher Prüfer)

☐

yes

EAC Scopes:
(EAC Branchen)

CDM 01 - Energy industries (renewable - / non-renewable sources)

Add. qualification:
(zus. Qualifikation)

First Appointment:
(Erstberufung)

2009-03-08

Valid to:
(Gültig bis)

2012-03-07

Remarks:

Languages:

Chinese

English

Experience Exchange

Date

Location

Remarks

Accreditation (s)

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next
Monitoring:
(nächste
Beurteilung)

Remarks:

History of scope allocation

Date: 2009-03-08
Change: EAC CDM added
By: Manfred Brinkmann
Reason:

History

Created: 2008-03-20 13:56:52
Modified: 2008-03-20 13:57:07

Daxun Li/Ej/Chn/TUV
Daxun Li/Ej/Chn/TUV

Qualification

Brinkmann, Manfred /

Emission Trading

United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:
(Zugelassen)

☒

ja

Qualification Level: Auditor
(Qualifikationsstufe)

External:
(Externer)

☐

ja

Add. reviewer: ☒ yes
(Zusätzlicher Prüfer)

EAC Scopes:
(EAC Branchen)

CDM 03 - Energy demand
CDM 04 - Manufacturing industries
CDM 05 - Chemical industry
CDM 10 - Fugitive emissions from fuels (solid; oil and gas)
CDM 11 - Fugitive emissions from production and consumption
of halocarbons and sulphur hexafluoride
CDM 12 - Solvents use
CDM 01 - Energy industries (renewable - / non-renewable
sources)
CDM 06 - Construction
CDM 13 - Waste handling and disposal

Add. qualification:
(zus. Qualifikation)

First Appointment: 2004-03-03
(Erstberufung)

Valid to:
(Gültig bis)

2010-03-02

Remarks:

Languages: German
English
French

Experience Exchange

Date	Location	Remarks	Accreditation (s)
------	----------	---------	-------------------

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next
Monitoring:
(nächste
Beurteilung)

Remarks:

History of scope allocation

Date: 2004-03-05
Change: EAC CDM, CDM added
By: Klaus-Dieter Fritsch
Reason:

Date: 2004-03-03
Change: EAC CDM, CDM, CDM, CDM, CDM added
By: Klaus-Dieter Fritsch
Reason: Qualification is based on the applicant's ISO 14001 auditor qualification.

History

Created:	2003-12-11 13:27:13	-
Modified:	2007-11-22 11:00:46	Manfred Brinkmann/Jpn/TUV