

Verification report form for GS project activities	
VERIFICATION REPORT	
Title of the project activity	Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project
Reference number of the project activity	GS ID: 835 TN P-No. : 8000485367 – 18/049
Version number of the Verification report	1.0
Completion date of the Verification report	16/08/2018
Monitoring period number and duration of this monitoring period	MP 6 th 01/01/2016-31/12/2017 (Including both days)
Version number of monitoring report to which this report applies	2
Crediting period of the project activity corresponding to this monitoring period	2 nd renewable crediting period 01/01/2016 to 31/12/2022
Project participant(s)	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. Tongdao Dong Autonomous County Liangjiangkou Hydropower Station Climate Bridge Ltd.
Host Party	P. R. China
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	Scope: 1 / Technical area: 1.2 CDM Methodology: ACM0002 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources (version 16.0)
Estimated GHG emission reductions or net anthropogenic GHG removals for this monitoring period in the registered PDD	25,895 tCO ₂ e 01/01/2016-31/12/2016: 12,965 tCO ₂ e 01/01/2017-31/12/2017: 12,930 tCO ₂ e
Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period	25,659 tCO ₂ e 01/01/2016-31/12/2016: 12,816 tCO ₂ e 01/01/2017-31/12/2017: 12,843 tCO ₂ e
Name of VVB	TÜV NORD CERT GmbH
Name, position and signature of the approver of the Verification report	 Stefan Winter Final Approver

SECTION A. Executive summary

Climate Bridge Ltd. has commissioned the TÜV NORD JI/CDM Certification Program to carry out the Gold Standard (GS) 6th periodic verification of the project:

“Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project”

with regard to the relevant Gold Standard requirements.

This verification covers the period from 01/01/2016 to 31/12/2017 (including both days).

Via on-site investigation, it is confirmed the project activity is a renewable hydro electricity generation project activity that will displace electricity generation in the Central China Power Grid (CCPG), displacing fossil fuel dominated electricity generation and thus resulting in greenhouse gases emission reductions.

The project is a grid connected hydro power project with a total installed capacity of 5.89MW (4MW+1.89MW).

The bundled project includes 2 small-scale hydro power generation projects as follows:

The Guanbaodu project is located on Qu River. The installed capacity is 4 MW (1MW×4), and the annual net electricity generation is estimated to be 15,513 MWh. The surface area of the full reservoir is 174,000 m², thus the power density of Guanbaodu is 23 W/m². The operation of Guanbaodu project displaces equivalent power generated from CCPG which is mainly dominated by fossil fuel fired power plants. It helps to reduce greenhouse gas (GHG) emissions by an estimated 9,281 tCO₂e per year during the second crediting period. The main construction of Guanbaodu project consists of a dam, a power house and a switch station. The generated electricity is delivered to the Gantang Substation via a 35kv power transmission line, then delivered to Jingzhou Power Grid, and finally connected to CCPG.

The Liangjiangkou project is located on Tongdao River. The installed capacity is 1.89 MW (0.63MW×3), and the annual net electricity generation is estimated to be 6,099 MWh. The surface area of the full reservoir is 180,000 m², thus the power density of Liangjiangkou is 10.5 W/m². The operation of Liangjiangkou project displaces equivalent power generated from CCPG which is mainly dominated by fossil fuel fired power plants. It helps to reduce greenhouse gas (GHG) emissions by an estimated 3,649 tCO₂e per year during the second crediting period. The main construction of Liangjiangkou project consists of a dam, a power house, a booster substation and a tail water channel. The generated electricity is delivered to the Xianxi Substation via a 35kv power transmission line, and finally connected to CCPG.

The emission reductions are claimed from both power plants. The net electricity generation is 42,889.19 MWh, therefore, 25,659 tCO₂e emission reductions are achieved during this monitoring period.

The construction of *Guanbaodu Hydropower Station* (hereafter referred to as “Guanbaodu”) commenced in August 2005 with an installed capacity of 4MW, and its operation started in January 2008; and the construction of *Liangjiangkou Hydropower Station* (hereafter referred to as “Liangjiangkou”) commenced in August 2006 with an installed capacity of 1.89MW, and its operation started in January 2008, which has been confirmed in the registered Validation Report^{/VAL/} and the daily operational log^{/LOG/} against the and previous verification report^{/VER/}.

As part of the site visit the Verification Team was able to confirm that the project implementation is in accordance with the project description contained in the 2nd crediting period PDD.

The project was registered as a GS-VER project on 31/12/2010 with the registration number of GS835. According to the validation report^{/VAL/} and previous verification report^{/VER/}, the project participant has adopted for the renewable crediting period of 21 years with the start date of 01/01/2009.

Details of the project location are given in table A-1 below:

Table A-1: Project Location

No.	Project Location
Host Country	China
Region:	Hunan Province
Project location address:	Guanbaodu: Guanbaodu Village, Taiyangping Town, Jingzhou Miao & Dong Autonomous County, Huaihua City Liangjiangkou: Liangjiangkou Village, Shuangjiang Town, Tongdao Dong Autonomous County, Huaihua City
Guanbaodu Project	
Latitude:	26°40'38" N
Longitude:	109°44'09" E
Liangjiangkou Project	
Latitude:	26°13'11" N
Longitude:	109°47'45" E

Basic technical details of the project are summarized in table A-2.

Table - A-2: Technical data of the project activity

Guanbaodu Project

Parameter	Unit	Value
Hydro Turbine		
Quantity	-	4
Model	-	GD008-WZ-275
Installed capacity	MW	1.097
Water head	m	3.4
Flow rate	m ³ /s	37.8
Rotation Speed	r/min	133.3
Generator		
Quantity	-	4
Model	-	SFW1000-10/1430
Rated capacity	MW	1
Rated voltage	kV	6.3
Rated current	A	114
Rated rotation Speed	r/min	600
Power factor	-	0.8

Liangjiangkou Project

Parameter	Unit	Value
Hydro Turbine		
Quantity	-	3
Model	-	Z003-LH-160
Installed capacity	MW	0.7
Water head	m	6.8
Flow rate	m ³ /s	12.3
Rotation Speed	r/min	250
Generator		
Quantity	-	3
Model	-	SF630-24/1730
Rated capacity	MW	0.63

Parameter	Unit	Value
Rated voltage	kV	0.4
Rated current	A	113
Rated rotation Speed	r/min	250
Power factor	-	0.8

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved CDM methodology, i.e., ACM0002 ver. 16.0.
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring report is in accordance with the relevant GS requirements^{/GSR/}.
- the project contributes to sustainability development.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the GS 6th periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions:	Total	25,659 t CO₂e
	01/01/2016-31/12/2016:	12,816 tCO ₂ e
	01/01/2017-31/12/2017:	12,843 tCO ₂ e

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader (also verifier)	EI	ZHAO	Xuejiao	TN China	x	x	x	x

B.2. Technical reviewer and approver of the Verification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer / Approver	IR	Winter	Stefan	TN CERT GmbH

SECTION C. Means of verification

C.1. Desk review

During the desk review all documents initially provided by the client and publicly available documents relevant for the verification were reviewed. The main documents are listed below:

- the registered 2nd CP PDD including the monitoring plan^{/PDD/},
- the registered 2nd CP GS validation report^{/VAL/},
- documentation of previous verification^{/VER/},
- the monitoring report, including the claimed emission reductions for the project during this monitoring period^{/MR/},
- the emission reduction calculation spreadsheet for this monitoring period^{/XLS/}.

Other supporting documents, such as publicly available information on the Gold Standard website and background information were also reviewed.

C.2. On-site inspection

Duration of on-site inspection: 30/05/2018-31/05/2018				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening meeting	Guanbaodu Plant in Guanbaodu Village, Taiyangping Town, Jingzhou Miao & Dong Autonomous County, Huaihua City, Hunan Province, P.R. China	30/05/2018	Zhao Xuejiao
2	On-site inspection Interview with PP Representative, Operation Staff and local stakeholders of Guanbaodu Plant	Guanbaodu Plant in Guanbaodu Village, Taiyangping Town, Jingzhou Miao & Dong Autonomous County, Huaihua City, Hunan Province, P.R. China	30/05/2018	Zhao Xuejiao
3	Documents check of Guanbaodu Plant	Guanbaodu Plant in Guanbaodu Village, Taiyangping Town, Jingzhou Miao & Dong Autonomous County, Huaihua City, Hunan Province, P.R. China	30/05/2018	Zhao Xuejiao
4	On-site inspection Interview with PP Representative, Operation Staff and local stakeholders of Liangjiangkou Plant	Liangjiangkou plant in Liangjiangkou Village, Shuangjiang Town, Tongdao Dong Autonomous County, Huaihua City, Hunan Province, P.R. China	31/05/2018	Zhao Xuejiao
5	Documents check of Liangjiangkou Plant	Liangjiangkou plant in Liangjiangkou Village, Shuangjiang Town, Tongdao Dong Autonomous County, Huaihua City, Hunan Province, P.R. China	31/05/2018	Zhao Xuejiao
6	Finding Summary	Liangjiangkou plant in Liangjiangkou Village, Shuangjiang Town, Tongdao Dong Autonomous County,	31/05/2018	Zhao Xuejiao

		Huaihua City, Hunan Province, P.R. China		
7	Close Meeting	Liangjiangkou plant in Liangjiangkou Village, Shuangjiang Town, Tongdao Dong Autonomous County, Huaihua City, Hunan Province, P.R. China	31/05/2018	Zhao Xuejiao

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Li ^{/11/}	Jing	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. /Guanbaodu Plant Chief	30/05/2018	- General aspects of the project - Changes since validation / previous verifications - Calibration procedures - Power generation situation - Quality management system	Zhao Xuejiao
2	Xiao ^{/11/}	Hui	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. /Guanbaodu Plant Director	30/05/2018	- Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - Procedural aspects of the verification - Maintenance - Environmental aspects - Job opportunities - Salary level - Water quality and quantity - Solid waste - Biodiversity - Livelihood of the poor - Access to energy service	Zhao Xuejiao
3	Xiang ^{/11/}	Tianjing	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. /Guanbaodu Plant Staff	30/05/2018	- Calibration procedures - Power generation situation - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Maintenance - Environmental aspects - Job opportunities - Salary level	Zhao Xuejiao
4	Chu ^{/12/}	Yanming	Jingzhou Miao & Dong Autonomous	30/05/2018	- Water quality and quantity - Solid waste - Biodiversity	Zhao Xuejiao

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
			County Environment Protection Bureau/ Inspection team leader		- Livelihood of the poor - Management Regulation of Environment and Health	
5	Xu ^{/12/}	Yufeng	Guanbaodu Village, Taiyangping Town, Jingzhou Miao & Dong Autonomous County/local resident	30/05/2018	- Water quality and quantity - Solid waste - Biodiversity - Livelihood of the poor	Zhao Xuejiao
6	Su ^{/12/}	Renxing	Guanbaodu Village, Taiyangping Town, Jingzhou Miao & Dong Autonomous County/local resident	30/05/2018		Zhao Xuejiao
7	Wu ^{/11/}	Yourong	Tongdao Dong Autonomous County Liangjiangkou Hydropower Station/ General Manager	31/05/2018	- General aspects of the project - Changes since validation / previous verifications - Calibration procedures - Power generation situation - Quality management system	Zhao Xuejiao
8	Yang ^{/11/}	Zhiqin	Tongdao Dong Autonomous County Liangjiangkou Hydropower Station/ Liangjiangkou Plant Chief	31/05/2018	- Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - Procedural aspects of the verification - Maintenance - Environmental aspects - Job opportunities - Salary level - Water quality and quantity - Solid waste - Biodiversity - Livelihood of the poor - Access to energy service	Zhao Xuejiao
9	Ou ^{/11/}	Liuqiao	Tongdao Dong Autonomous County	31/05/2018	- Calibration procedures - Power generation situation - Involved personnel and	Zhao Xuejiao

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
			Liangjiangkou Hydropower Station/ Plant Staff		responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Maintenance - Environmental aspects - Job opportunities - Salary level	
10	Wu ^{/12/}	Yanchao	Jingzhou Miao & Dong Autonomous County Environment Protection Bureau/Vice Bureau Chief	31/05/2018	- Water quality and quantity - Solid waste - Biodiversity - Livelihood of the poor - Management Regulation of Environment and Health	Zhao Xuejiao
11	Shi ^{/12/}	Qingchun	Liangjiangkou Village, Shuangjiang Town, Tongdao Dong Autonomous County/Local resident	31/05/2018	- Water quality and quantity - Solid waste - Biodiversity - Livelihood of the poor	Zhao Xuejiao
12	Huang ^{/13/}	Shanfeng	Climate Bridge Ltd./Vice General Manager	30/05/2018-31/05/2018	- Monitoring plan - Monitoring training - Emission reduction calculation	Zhao Xuejiao

During the site visit, the verification team has randomly selected operation staffs^{/11/} and local stakeholders^{/12/} to confirm that the correctness of the parameters reported by the PP.

The questions asked were basically based on requirements of the Annex I, Rules and Toolkit to the Gold Standard version 1.0^{/GST/}. The main topics included, but not limited to, the followings:

For Guanbaodu:

- Water quality and quantity - Wastewater treatment, discharge amount of sanitary wastewater
- Solid wastes - Domestic rubbish treatment
- Biodiversity (species and habitat conservation) - Impact by the project on the local ecological environment
- Employment - Job opportunities, salary
- Livelihood of the poor - Financial balance, employment opportunities
- Access to energy service - Electricity generation
- Human and institutional capacity - Monthly payroll, Training regarding operation and maintenance

A summary of interview questions and feedback received are presented in the below table:

SD indicator	Questions for stakeholders during the site interviews	Summary of feedback
Water quality and quantity	1. Is there any wastewater discharged to the river?	Never
Soil wastes	2. How is the soil quality after the installation and operation of the project?	It is not affected
	3. Is there any solid waste discharged by the project and impact the local environment?	No solid waste discharged and no impact to local environment
Biodiversity	4. Do you think the project affect the fauna of the site?	Positive impacts. There are more fishes in the river than before
	5. Do you think the project affects the ecological environment of the site?	No negative impact on local ecological environment
Employment	6. Do you think that this project offers opportunities for employment?	Yes, the projects provide very good opportunities for employments of local residents
	7. Do you think that this project could provide income to employees higher than the average level?	Also higher salary are offered by the project proponents
Livelihood of the poor	8. Is there any permanent jobs and tentative jobs provided by the project?	Permanent and tentative jobs are offered by the project proponents
Access to energy services	9. Do you have electricity access before and now?	Before there were more blackouts but this was solved with the project
	10. How much on average do you have to pay for electricity in the past? How is it compared with the actual situation with the project?	The prices did not change but we have participation through the cooperative
	11. Do you think the project will contribute to a long lasting solution for your energy needs?	Yes, because the energy is generated locally
Human and institutional capacity	12. What is the main way of making money in your household? Can this project bring new jobs even to women?	The main way before the project is agriculture. The project offers a new work area for some residents and local women.
	13. Do you think that the trainings will be offered to workers in this project?	Yes
-	14. How do you communicate your questions or comments to the PP?	The personnel of the plant organized public meetings and always is possible to communicate directly with the designated personnel of the plant.

Verification Team along with onsite observation, objective evidence collections, data generation and recording analysis also considered the views obtained in these interviews while arriving at Verification Opinion.

C.4. Sampling approach

D.4.1 Sampling during monitoring

☒	No sampling approach has been used by the PP to determine the monitored parameters				
☐	A sampling approach has been taken for the following monitored parameter(s):				
	Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size

¹⁾ Sampling Approaches:

SiRS: Simple Random Sampling
 StRS: Stratified Random Sampling
 SS: Systematic Sampling
 CS: Cluster Sampling
 MSS: Multi-stage Sampling

²⁾ Sampling Types:

PS: Parameter Sampling

D.4.2 Sampling approaches during verification

☒	No sampling approach has been used by the VT to verify the monitored parameters				
☐	A sampling approach has been applied by the VT for the following monitored parameter(s):				
	Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size

¹⁾ Sampling Approaches:

SiRS: Simple Random Sampling
 StRS: Stratified Random Sampling
 SS: Systematic Sampling
 CS: Cluster Sampling
 MSS: Multi-stage Sampling

²⁾ Sampling Types:

AS: Acceptance Sampling
 PS: Parameter Sampling
 COM: Full data check at higher data aggregation levels and sampling at original data levels

C.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form (D.1)	-	1	-
Compliance of the project implementation with the registered PDD (D.3)	-	-	-
Post-registration changes (D.4)	-	-	-
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline (D.5)	-	1	-

Compliance of monitoring activities with the registered monitoring plan (D.6)	-	-	-
Compliance with the calibration frequency requirements for measuring instruments (D.7)	-	1	-
Assessment of data and calculation of emission reductions or net removals (D.8)	1	4	-
Others (please specify)	-	-	-
Total	1	7	0

SECTION D. Verification findings

D.1. Compliance of the monitoring report with the monitoring report form

Means of verification		A draft monitoring report was submitted to the verification team by the project participants prior to the start of the verification activities. By means of the GS website it has been checked the appropriate form has been used. Further every section has been checked against the respective guidance and GS requirements. The following sources of information have been used in this context: • /MR/ • /GSR/
Findings	☒	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context: - CAR 1
Conclusion	☐	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	☒	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		A draft monitoring report was submitted to the verification team by the project participants. During the verification, mistakes and needs for clarification were identified. The PP has carried out the requested corrections so that it can be confirmed that the Monitoring report is complete and transparent and in accordance with the latest approved PDD and other relevant requirements.

D.2. Remaining forward action requests from validation and/or previous verification

During the validation the validating DOE might have raised issues that could not be closed or resolved during the validation stage. For this purpose FARs might have been raised. Likewise FARs might have been raised in the course of previous verifications.

In the course of this verification the registered PDD^{/PDD/} and the previous verification report ^{/VER/}, where applicable, have been checked in order to identify any remaining forward action requests. For the current monitoring period the following applies:

(i) Open issues from validation:

☒	There were no open issues which have been addressed in the latest version of the validation report.
☐	All open issues from the validation have been appropriately addressed in the context of previous verifications.
☐	All issues related to the validation have been appropriately addressed in the course of the current monitoring period (for details please refer to Appendix 4)
☐	The following issues related to the validation have not yet been appropriately addressed (for details please refer to Appendix 4):
	- N/A

(ii) Open issues from previous verifications:

☐	N/A – as this is the first monitoring period for this GS project activity.
☒	There were no open issues which have been addressed in the previous verification report
☐	All issues related to the previous verification have been appropriately addressed in the course of the current monitoring period (for details please refer to Appendix 4)
☐	The following issues related to the previous verification have not yet been appropriately addressed (for details please refer to Appendix 4):
	- N/A

D.3. Compliance of the project implementation with the registered project design document

Means of verification	By means of an in-depth review of the PDD in its latest form – as downloaded from the GS project site - and the checks carried out during the on-site visit an assessment has been carried out whether the project has been implemented and operated in line with the registered PDD and whether all physical features of the project are in place. The following has been checked: implemented technology, project equipment as well as monitoring and metering equipment. Further is has been checked if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period and consistent notations of key equipment (meters etc.) in PDD, MR and calculation spreadsheet are applied. Interviews with operational personnel^{/1/} have been carried out, QMS records, maintenance records, instrument specifications were checked in this context. Special focus has further been laid to determine whether a potential phase wise implementation has occurred within the crediting period or any delays with respect to the starting dates have occurred. The following sources of information have been used in this context: • /PDD/ • /MR/ • /GSR/ • /GST/ • /XLS/ • /QAQC/ • /CAL/																
Findings	<table border="1"> <tr> <td>☒</td><td>The project has been implemented as described in the latest version of the PDD as well as in section 2 of the monitoring report. No deviations thereof have been identified in the course of this verification.</td></tr> <tr> <td>☐</td><td>The following deviations from the registered / approved project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section D.4): - N/A</td></tr> <tr> <td>☐</td><td>In this context the following CARs, CLs have been raised: - N/A</td></tr> <tr> <td colspan="2"><i>In case of phased implementation:</i></td></tr> <tr> <td>☒</td><td>N/A</td></tr> <tr> <td>☐</td><td>The phased implementation has correctly and in sufficient detail been described in the latest version of the PDD.</td></tr> <tr> <td>☐</td><td>The description in section 2 of the MR differs in content or the level of detail from the latest version of the PDD. However, the description in the MR is correct and reflects the situation during the site inspection.</td></tr> <tr> <td>☐</td><td>The project description in the PDD/MR is not deemed sufficient. The detailed implementation timeline is as follows: N/A</td></tr> </table>	☒	The project has been implemented as described in the latest version of the PDD as well as in section 2 of the monitoring report. No deviations thereof have been identified in the course of this verification.	☐	The following deviations from the registered / approved project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section D.4): - N/A	☐	In this context the following CARs, CLs have been raised: - N/A	<i>In case of phased implementation:</i>		☒	N/A	☐	The phased implementation has correctly and in sufficient detail been described in the latest version of the PDD.	☐	The description in section 2 of the MR differs in content or the level of detail from the latest version of the PDD. However, the description in the MR is correct and reflects the situation during the site inspection.	☐	The project description in the PDD/MR is not deemed sufficient. The detailed implementation timeline is as follows: N/A
☒	The project has been implemented as described in the latest version of the PDD as well as in section 2 of the monitoring report. No deviations thereof have been identified in the course of this verification.																
☐	The following deviations from the registered / approved project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section D.4): - N/A																
☐	In this context the following CARs, CLs have been raised: - N/A																
<i>In case of phased implementation:</i>																	
☒	N/A																
☐	The phased implementation has correctly and in sufficient detail been described in the latest version of the PDD.																
☐	The description in section 2 of the MR differs in content or the level of detail from the latest version of the PDD. However, the description in the MR is correct and reflects the situation during the site inspection.																
☐	The project description in the PDD/MR is not deemed sufficient. The detailed implementation timeline is as follows: N/A																

Conclusion	☒	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	☐	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		During the verification a site visit was carried out. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipment, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the registered 2 nd CP PDD.

D.4. Post-registration changes

D.4.1. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

It has been checked whether Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM) have been applied during this monitoring period. The result is summarized in the table below.

☒	No Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM) have been submitted to the GS prior to the current monitoring period.		
☐	The following TDfrMP or TDfMM have been approved or are under approval by the GS		
	1	Title	
		Status	☐ under approval; ☐ approved (approval No.:)
		Appr.date	
		Ref. No.	
	2	Title	
		Status	☐ under approval; ☐ approved (approval No.:)
		Appr.date	
		Ref.No.	
☒	During the verification of the current MP no need for a TDfrMP or TDfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
☐	An approval of the following TDfrMP or TDfMM is to be requested from the GS for the current MP as appendix 1 of the project standard does not apply. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.		
	1	Issue:	
	2	Issue:	
☐	The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

D.4.2. Corrections

It has been checked whether any corrections to project information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☒	During the verification of the current MP no need for corrections has been identified.	
☐	The following corrections have been applied:	
1	Issue:	
	The PDD has been revised accordingly: (New) version No.: Revision date: XX/XX/XXXX	
	It is confirmed that the updated / corrected information is an accurate reflection of the actual project information and that the corrected parameters are in accordance with the applied methodology and the monitoring plan.	
	☐ A related post registration change has been submitted prior to the issuance request. The approval has been received on XX/XX/XXXX via approval number PRC-XXXX-00X. ☐ A related post registration change is submitted along with this issuance request. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.	

D.4.3. Changes to the start date of the crediting period

☐	N/A - as this is not the first verification within the crediting period
☐	The PPs do not intend to change the start date of the crediting period.
☐	As the change in the start date was below the related time period as indicated in PS § 277 and § 278 no prior approval was required but only a notification. This notification has been submitted by the PP without involvement of the DOE. The change and new start date has been checked from the related GSvproject webpage.
☐	The PPs intend to change the start date of the crediting period. As the intended change in start date beyond the related time period as indicated in PS § 279 prior approval by the Board is required. For detailed assessment of the change please refer to related PRC validation report. As per assessment in this report the DOE confirms that the change to the start date of the crediting period are in line with the related requirements of the VVS and PS.
☐	The approval to change the start date of the crediting period has been approved by GS registry. The registration date of the project is XX/XX/XXXX.

D.4.4. Inclusion of a monitoring plan to a registered project activity

☒	N/A - as this monitoring plan was part of the registered PDD
☐	In line with PS § 281 or § 282 the PP has forwarded a monitoring plan to the DOE for validation. No prior approval of the monitoring plan was required as the PP in line with PS § 282 wished to submit the monitoring plan together with the request for issuance for the first monitoring period. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC..
☐	In line with § 282 the PP submitted a monitoring plan prior to the submission of the request for issuance for validation to the DOE. A DOE has assessed the monitoring plan in line with related VVS requirements and submitted a related PRC report for prior approval. The approval has been received on DD/MM/YYYY via approval number PRC-XXXX-00Z.

D.4.5. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline

It has been checked whether any permanent changes from the registered monitoring plan (PCfrMP) or applied methodologies (PCfMM) including standardized baselines (PCfSB) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☒	No PCfrMP, PCfMM or PCfSB have been submitted to the GS prior to the current monitoring period		
☐	The following PCfrMP, PCfMM or PCfSB have been approved or are under approval by the UNFCCC		
	1	Title	Revised Monitoring Plan
		Status	☐ under approval; ☐ approved
		Appr.date	
		Ref. No.	N/A
	2	Title	Revised Monitoring Plan
		Status	☐ under approval; ☐ approved
		Appr.date	
		Ref.No.	N/A
☒	During the verification of the current MP no need for a PCfrMP, PCfMM or PCfSB has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
☐	An approval of the following PCfrMP, PCfMM or PCfSB is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.		
	1	Issue:	
	2	Issue:	
☐	The following PCfrMP, PCfMM or PCfSB for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

D.4.6. Changes to the project design of a registered project activity

It has been checked whether any changes to the project design (CoPD) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☐	No CoPD has been submitted to the GS prior to the current monitoring period		
☒	The following CoPD have been approved or are under approval by the GS		
	1	Title	The project used to consist of three hydropower projects, the Guanbaodu hydropower project (referred as 'Guanbaodu'), the Liangjiangkou hydropower project (referred as 'Liangjiangkou') and the Xinglong hydropower project (referred as 'Xinglong'). The total installed capacity of the bundle project was 7.65 MW with annual expected net electricity generation (electricity supplied to power grid) of 27,745MWh. Upon a design change request on 08/08/2014, the project participants changed the design of the project by removing one of the hydropower projects (Xinglong) from the bundled project. The rest two projects were still bundled and nothing else changed. As a result, the changed project

		only consists of two hydropower projects (Guanbaodu and Liangjiangkou), and the installed capacity is 5.89 MW with annual expected net electricity generation of 21,612 MWh. Also, the project title has also been changed from 'Guanbaodu-Liangjiangkou-Xinglong Small-scale Hydropower Bundle Project' to 'Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project'.	
	Status	☐ under approval; ☒ approved	
	Appr.date	03/09/2014	
	Ref. No.	N/A	
	2	Title	
	Status	☐ under approval; ☐ approved	
	Appr.date		
	Ref.No.		
☒	During the verification of the current MP no need for a CoPD has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
☐	An approval of the following CoPD.is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.		
	1	Issue:	
	2	Issue:	
☐	The following CoPD for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

D.4.7. Types of changes specific to afforestation and reforestation project activities

☒	N/A - as this monitoring plan was part of the registered PDD
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D.5. Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline

Means of verification	By means of comparison of the MR with (i) the applied CDM methodology (ii) all applicable CDM Meth tools and (iii) if applicable, a standardized baseline the verification team has checked whether the MP is in compliance with the MP related requirements of the applied methodology/tools/SB. The following sources of information have been used in this context: • /MR/ • /ACM0002/ • /unfccc/			
Findings	☒	The MP is completely in accordance with the approved methodology applied by the GS project (last registered/approved version of the PDD)		
	☒	The breakdown of MP accordance of the referenced tools is as follows:		
		1	Title (of the tool)	Tool to calculate the emission factor for an electricity system
		Version	05.0	
		MP compliance	☒ full compliance ☐ findings have been raised ☐ N/A (for MP)	

	2	Title (of the tool)	Assessment of the validity of the original/current baseline and update the baseline at the renewal of the crediting period	
		Version	03.0.1	
		MP compliance	☒ full compliance ☐ findings have been raised ☐ N/A (for MP)	
	☐	The breakdown of MP accordance of the applicable SB is as follows:		
		1	Title (of the SB)	Name of SB
			Version	
			MP compliance	
	☒	In this context the following CARs, CLs, FARs have been raised: - CAR 2		
	Conclusion	☐	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.	
		☒	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.	
The monitoring plan complies with the applied methodology and the monitoring system and all applied procedures are completely in compliance to the latest approved monitoring plan and the methodology ACM0002 (version 16.0). The monitoring system and all applied procedures of sustainable development are completely in compliance to the registered Passport.				

D.6. Compliance of monitoring activities with the registered monitoring plan

D.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	By means of comparison of the MR and the ER calculation with the registered PDD the verification team has checked whether all parameters fixed ex-ante or at renewal of the crediting period have been applied correctly. The parameters that are fixed ex ante are following:										
	<table border="1"> <thead> <tr> <th>Parameters</th> <th>Source of data</th> <th>Values applied</th> <th>Demonstration by Verification team</th> </tr> </thead> <tbody> <tr> <td>EF_{grid,CM,y}</td> <td>Data from registered GS 2nd CP PDD and China DNA</td> <td>0.5983 tCO₂e/MWh</td> <td>This is an ex-ante fixed value and will be fixed during the 2nd crediting period. This is verified as in line with the registered 2nd CP PDD/^{PDD/}.</td> </tr> </tbody> </table>				Parameters	Source of data	Values applied	Demonstration by Verification team	EF _{grid,CM,y}	Data from registered GS 2 nd CP PDD and China DNA	0.5983 tCO ₂ e/MWh
Parameters	Source of data	Values applied	Demonstration by Verification team								
EF _{grid,CM,y}	Data from registered GS 2 nd CP PDD and China DNA	0.5983 tCO ₂ e/MWh	This is an ex-ante fixed value and will be fixed during the 2 nd crediting period. This is verified as in line with the registered 2nd CP PDD/ ^{PDD/} .								
Findings	☒	The MR and the ER calculation have considered the parameters fixed ex-ante or at the renewal of the crediting period correctly, no deviations have been observed.									
	☐	The following deviations from the parameters fixed ex-ante or at renewal of crediting period have been identified in the course of this verification:									

		- N/A
	☐	In this context the following CARs, CLs, FARs have been raised: - N/A
Conclusion	☒	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☐	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		The parameters fixed ex ante have been indicated in the registered GS PDD. And the MR is checked as in line with the PDD.

D.6.2. Data and parameters monitored

D.6.2.1 Carbon Data and parameters monitored

Means of verification	During the verification all relevant monitoring parameters (as listed in chapter D.3 of the PDD) have been verified with regard to the (i) appropriateness of the applied measurement / determination method, (ii) the correctness of the values applied for ER calculation, (iii) the accuracy, and applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the project specific verification checklist (Appendix 5).	
Findings	N/A	
Conclusion	☒	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☐	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		It can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

D.6.2.2 Sustainable Data and parameters monitored

Means of verification	The monitoring of the contribution to sustainable development during this monitoring period according to the sustainability monitoring plan in GS registered PDD is verified as follows:			
	Guanbaodu:			
	Sustainable development indicator	Methods and equipments used	Frequency	Assessment by verification team
	Water quality and quantity	The waste water during the operation period was monitored by stakeholders' questionnaires and relevant management. The discharge amount of sanitary wastewater was monitored by the payroll with information of employee	Yearly during the operation period	The waste water during the operation period was monitored by stakeholders' questionnaires and relevant management. The project owner made a questionnaire for 12 local residents on 15/04/2016 and 15/04/2017 separately to ask their comments. The discharge amount of sanitary wastewater was monitored by the payroll with information of employee numbers. Via checking the Standard of Quota for

		numbers.		Water Use (DB43/T 388-2008)^{/SWU/}, it is confirmed that maximum daily demand of water use in rural area in Hunan Province is considered 80 liters per person daily. Hence produced wastewater is much less than 160 liters permitted in the EIA. As per the Management Regulation of Environment and Health, it stated that the waste water generated during operation period should be treated in the septic tank by digestion process and reused as fertilizers without any discharge to river as defined in EIA, and complying with the Integrated wastewater Discharge Standard. The VT checked the information from EIA^{/EIA/}, Management Regulation of Environment and Health for Guanbaodu Hydropower Station^{/MREH/} and stakeholder questionnaires^{/QUE/} and confirmed this by interviews of plant personnel and local stakeholders. The management done by the PP is in line with the monitoring plan and is in compliance with the environmental regulation. And the information reported in the MR is correct. Thus the verification team is convinced that 'Water quality' is not negatively impacted.
	Solid wastes	The domestic rubbish treatment during the operation period was monitored by stakeholders' questionnaires and relevant management	Yearly during the operation period	The domestic rubbish treatment during the operation period was monitored by stakeholders' questionnaires and relevant management. The project owner made a questionnaire for 12 local residents on 15/04/2016 and 15/04/2017 separately to ask their

				comments. As per the Management Regulation of Environment and Health for Gunbaodu Hydropower Station, it stated that the solid waste generated during operation period should be transported to the designated wastes deposit plant and then to landfill plant for central disposal as defined in EIA. Information from the EIA^{/EIA/}, Management Regulation of Environment and Health for Gunabaodu Hydropower Station ^{/MREH/} and stakeholder questionnaires^{/QUE/} were reviewed and confirmed by interviews of plant personnel and local stakeholders. The management done by the PP is in line with the monitoring plan and is in compliance with the environmental regulation. And the information reported in the MR is correct. Thus the verification team is convinced that 'solid wastes' does not negatively impact the environment.
	Biodiversity (species and habitat conservation)	This indicator was monitored by stakeholder's questionnaires	Yearly	This indicator was monitored by stakeholder's questionnaires. Information from the EIA and stakeholder questionnaire^{/QUE/} were reviewed and confirmed by interviews of plant personnel^{/11/} and local stakeholders^{/12/}. Via verify the questionnaires of local stakeholders, it is confirmed that all of the 12 stakeholders stated that there was no significant impact on the local ecological

				environment, 2 of them also thought the local ecological environment were getting better. Hence, no negative impact is confirmed. The management done by the PP is in line with the monitoring plan and is in compliance with the environmental regulation. Thus the verification team is convinced that 'Biodiversity' does not negatively impacted by Guanbaodu plant.
	Employment	Basing on the monthly payrolls, the numbers of employees and their income were checked regularly	Monthly	Through reviewing the Employment Contract^{/EC/} and monthly payroll^{/PES/} of the monitoring period and onsite interview^{/I1/}, it is confirmed that 16 local people was employed in the project compared to the baseline with salary ranging from 1,471 to 5,659 RMB/month. The average salary of the employee is higher than the average salary of 1,078 RMB per month in rural area of Hunan Province^{/alhp/}. Via verify the monthly payroll^{/PES/} of the monitoring period and onsite interview^{/I1/}, it is confirmed that the job oppotunities were provided and the average salary is higher than the local level. The management done by the PP is in line with the monitoring plan. Therefore the verification team is convinced that the 'Employment' is positively improved compared to the baseline.
	Livelihood of the poor	By checking the annual revenue of the Guanbaodu project, the shareholders' profit was calculated according to the ratio of their share.	Yearly	Through reviewing the Employment Contract^{/EC/} and monthly payroll^{/PES/} of the monitoring period and onsite interview^{/I1/}, it is confirmed that 16 local people was employed in the project compared to the baseline with salary ranging from 1,471 to 5,659 RMB/month. The

		Besides, the income of the local people who has been offered the job opportunities by the project was monitored by their payrolls		average salary of the employee is higher than the average salary of 1,078 RMB per month in rural area of Hunan Province^{/alhp/}. Furthermore, via verifying the annual revenue report^{/ARR/} of Guanbaodu Project, it showed that the annual profit of Guanbaodu Hydropower Station in 2016 and 2017 were positive, since the local villagers invested in the project, they have received their shares of the profit in return. Moreover, through onsite investigation, it is confirmed that the road and bridge built and the irrigation system^{/PHT/} sponsored by the project facilitate the daily life of the local residents and thus improve the livelihood of the poor. The monthly payroll^{/PES/}, annual revenue report^{/ARR/} of Guanbaodu Project and the relevant website were reviewed and confirmed by interviews of plant staffs. In addition, during the on-site investigation^{/PHT/}, it is confirmed that the road and bridge has been built and the daily life of the local residents has been facilitated, this is also confirmed by interviewing the local residents^{/12/}. Therefore the verification team is convinced that the livelihood of the poor is obviously improved compared to the baseline.
	Access to energy service	The power sales receipt received from the local grid company was checked monthly	Monthly	The power sales receipt received from the local grid company was checked monthly. The electricity from the project activity was delivered to Jingzhou County Grid, thus alleviating the power shortage in the county. Via verify the PPA^{/PPA/} and

				the monthly electricity balance sheets^{/EBS/}, it is confirmed that the electricity generated by the project is sold to the county grid as part of the CCPG and thus facilitate the access to energy service of the local residents compared to the baseline. Therefore the verification team is convinced that the project facilitates the access to energy service of the local residents.
	Human and Institutional Capacity	Gender information on the monthly payroll was checked monthly. Training reports regarding operation and maintenance were also checked.	Monthly	Through reviewing the Employment Contract^{/EC/} and monthly payroll^{/PES/} of the monitoring period and onsite interview^{/I1/}, it is confirmed that 1 job opportunity was provided for local women. Through reviewing the training records^{/TCR/}, it is confirmed that trainings were provided to the employees. The payrolls of the project showed that the project offered 1 job opportunities for local women. The project owner provided training courses of power station's technical and safe knowledge for all staff in 2016 and 2017 respectively, and made relevant examinations to make sure the stall have learned well. The management done by the PP is in line with the monitoring plan. Therefore the verification team is convinced that the project enhances the human and institutional capacity.
	Liangjiangkou:			
	Sustainable development indicator	Methods and equipments used	Frequency	Assessment by verification team
	Water quality and quantity	The waste water during the operation period was monitored by stakeholders'	Yearly during the operation period	The waste water during the operation period was monitored by stakeholders' questionnaires and relevant management.

		questionnaires and relevant management. The discharge amount of sanitary wastewater was monitored by the payroll with information of employee numbers.	The project owner made a questionnaire for 10 local residents on 15/04/2016 and 15/04/2017 separately to ask their comments. The discharge amount of sanitary wastewater was monitored by the payroll with information of employee numbers. Via checking the Standard of Quota for Water Use (DB43/T 388-2008)^{/SWU/}, it is confirmed that maximum daily demand of water use in rural area in Hunan Province is considered 80 liters per person daily. Hence produced wastewater is much less than 160 liters permitted in the EIA. As per the Management Regulation of Environment and Health, it stated that the waste water generated during operation period should be treated in the septic tank by digestion process and reused as fertilizers without any discharge to river as defined in EIA, and complying with the Integrated wastewater Discharge Standard. The VT checked the information from EIA^{/EIA/}, Management Regulation of Environment and Health for Liangjiangkou Hydropower Station^{/MREH/} and stakeholder questionnaires^{/QUE/} and confirmed by interviews of plant personnel and local stakeholders. The management done by the PP is in line with the monitoring plan and is in compliance with the environmental regulation. And the information reported in the MR is correct.
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				Thus the verification team is convinced that 'Water quality' is not negatively impacted.
	Solid wastes	The domestic rubbish treatment during the operation period was monitored by stakeholders' questionnaires and relevant management	Yearly during the operation period	The domestic rubbish treatment during the operation period was monitored by stakeholders' questionnaires and relevant management. The project owner made a questionnaire for 10 local residents on 15/04/2016 and 15/04/2017 separately to ask their comments. As per the Management Regulation of Environment and Health for Liangjiangkou Hydropower Station, it stated that the solid waste generated during operation period should be transported to the designated wastes deposit plant and then to landfill plant for central disposal as defined in EIA. Information from the EIA^{EIA/}, Management Regulation of Environment and Health for Gunabaodu Hydropower Station ^{/MREH/} and stakeholder questionnaires^{/QUE/} were reviewed and confirmed by interviews of plant personnel and local stakeholders. The management done by the PP is in line with the monitoring plan and is in compliance with the environmental regulation. And the information reported in the MR is correct. Thus the verification team is convinced that 'solid wastes' do not negatively impact the environment.
	Biodiversity (species and habitat conservation)	This indicator was monitored by	Yearly	This indicator was monitored by stakeholder's questionnaires.

		stakeholder's questionnaires		Information from the EIA and stakeholder questionnaire^{/QUE/} were reviewed and confirmed by interviews of plant personnel^{/11/} and local stakeholders^{/12/}. Via verify the questionnaires of local stakeholders, it is confirmed that all of the 10 stakeholders stated that there was no significant impact on the local ecological environment, 2 of them also thought the local ecological environment were getting better as there were more fishes in the river than before. Hence, no negative impact is confirmed. The management done by the PP is in line with the monitoring plan and is in compliance with the environmental regulation. Thus the verification team is convinced that 'Biodiversity' does not negatively impacted by Liangjiangkou plant.
	Employment	Basing on the monthly payrolls, the numbers of employees and their income were checked regularly	Monthly	Through reviewing the Employment Contract^{/EC/} and monthly payroll^{/PES/} of the monitoring period and onsite interview^{/11/}, it is confirmed that 13 local people were employed in the project compared to the baseline with salary ranging from 1,800 to 3,000 RMB/month. The average salary of the employee is higher than the average salary of 1,078 RMB per month in rural area of Hunan Province^{/alhp/}. Via verify the Employment Contract^{/EC/} and monthly payroll^{/PES/} of the monitoring period and onsite interview^{/11/}, it is confirmed that the job

				opportunities were provided and the average salary is higher than the local level. The management done by the PP is in line with the monitoring plan. Therefore the verification team is convinced that the 'Employment' is positively improved compared to the baseline.
	Livelihood of the poor	By checking the monthly payrolls of the project, the numbers of employees and their income were checked regularly	Yearly	Through reviewing the Employment Contract^{/EC/} and monthly payroll^{/PES/} of the monitoring period and onsite interview^{/I1/}, it is confirmed that 13 local people were employed in the project compared to the baseline with salary ranging from 1,800 to 3,000 RMB/month. The average salary of the employee is higher than the average salary of 1,078 RMB per month in rural area of Hunan Province^{/alhp/}. Moreover, through onsite investigation, it is confirmed that the road and bridge built and the irrigation system^{/PHT/} sponsored by the project facilitate the daily life of the local residents and thus improve the livelihood of the poor. The monthly payroll^{/PES/}, of Liangjiangkou Project and the relevant website were reviewed and confirmed by interviews of plant staffs. In addition, during the on-site investigation^{/PHT/}, it is confirmed that the road and bridge has been built and the daily life of the local residents has been facilitated, this is also confirmed by interviewing the local residents^{/I2/}. Therefore the

				verification team is convinced that the livelihood of the poor is obviously improved compared to the baseline.
	Access to energy service	The power sales receipt received from the local grid company was checked monthly	Monthly	The power sales receipt received from the local grid company was checked monthly. The electricity from the project activity was delivered to Tongdao County Grid, thus alleviating the power shortage in the county. Via verify the PPA^{/PPA/} and the monthly electricity balance sheets^{/EBS/}, it is confirmed that the electricity generated by the project is sold to the county grid as part of the CCPG and thus facilitate the access to energy service of the local residents compared to the baseline. Therefore the verification team is convinced that the project facilitates the access to energy service of the local residents.
	Human and Institutional Capacity	Gender information on the monthly payroll was checked monthly. Training reports regarding operation and maintenance were also checked.	Monthly	Through reviewing the Employment Contract^{/EC/} and monthly payroll^{/PES/} of the monitoring period and onsite interview^{/11/}, it is confirmed that 1 job opportunity was provided for local women. Through reviewing the training records^{/TCR/}, it is confirmed that trainings were provided to the employees. The payrolls of the project showed that the project offered 1 job opportunities for local women. The project owner provided training courses of power station's technical and safe knowledge for all

				staff in 2016 and 2017 respectively, and made relevant examinations to make sure the stall have learned well. The management done by the PP is in line with the monitoring plan. Therefore the verification team is convinced that the project enhances the human and institutional capacity.
Findings	N/A			
Conclusion	☒	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.		
	☐	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.		
	In summary, the verification team confirms that the project under the Gold Standard results in a positive contribution to local sustainable development.			

D.6.3. Implementation of sampling plan

Means of verification	The verification team has been checked whether the PPs have applied a sampling approach to determine the monitored values. Further it has been checked whether the PPs have correctly applied the implemented sampling plan including (i) description of the implemented sampling design (ii) collected data (iii) analysis of collected data (iv) demonstration on whether the required confidence/precision has been met. The following sources of information have been used in this context: • /MR/ • /XLS/ • /PDD/			
Findings	☒	The PPs have not applied sampling approaches for the parameters monitored.		
	☐	The PPs have applied sampling approaches for the following parameters monitored.		
		1	Parameter:	
			Name:	
			Description on how the sampling efforts and survey comply with the validated sampling plan:	
		2	Parameter:	
			Name:	
			Description on how the sampling efforts and survey comply with the validated sampling plan:	
	☐	In this context the following CARs, CLs, FARs have been raised:		
		-		

Conclusion	☒	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☐	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	N/A	

D.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification		During the verification the relevant monitoring equipment has been checked whether the calibration requirements have been met; especially if the calibration frequency is in line with the requirements of the validated PDD and/or the applicable calibration standards. The results as well as the verification procedure are described equipment-wise in the project specific verification checklist (Appendix 6). The following sources of information have been used in this context: • /MR/ • /XLS/ • /CAL/
Findings	☐	Based on the details listed in Appendix 6 the verification team can confirm that all installed monitoring equipment has been duly calibrated for this entire monitoring period.
	☐	Based on the assessment and information as per appendix 6 delay(s) in calibration have been identified. The PP has applied the maximum permissible error of the instrument to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration. From the related calibration certificates and emission reduction calculation the verification team confirms that the maximum permissible error has been applied in a conservative manner so that the adjusted measured values due to the delayed calibration result in fewer claimed emission reductions. For details please refer to Appendix 6
	☒	In this context the following CARs, CLs, FARs have been raised: - CAR 3
Conclusion	☐	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		The accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan and relevant national rules. The calibrations of all monitoring equipments installed have been verified as listed in table given in Appendix 6 to this report. Based on that the DOE can confirm that all installed monitoring equipment has been duly calibrated for this entire monitoring period.

D.8. Assessment of data and calculation of emission reductions or net removals

D.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	During the verification the calculation of baseline GHG emissions has been checked. In detail the following has been verified: • <i>Transparency</i>: It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae. • <i>Parameter consistency</i>: It has been checked whether all internal and external parameters and data used for the calculation are
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applied consistently in the monitoring report and the calculation spreadsheet.

- **Correctness:** It has been checked whether the applied formulae and methods for calculating baseline emissions are in accordance with the monitoring plan and the approved methodology.
- **Completeness:** It has been checked whether all calculations are complete and without omissions.

The following sources of information have been used in this context:

- /MR/
- /XLS/

Baseline Emissions Calculation Assessment:

The formula used for the determination of baseline emissions which is consistent with the registered PDD and the applied methodology:

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

According to the PDD, $EG_{PJ,y}$ is equal to $EG_{export,y}$ minus $EG_{import,y}$ in monitoring plan.

Where:

BE_y	Baseline Emissions (tCO ₂ e)
$EG_{PJ,y}$	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)
$EG_{export,y}$	Quantity of electricity exported to the grid by the project plant in year y (MWh/yr)
$EG_{import,y}$	Quantity of electricity imported from the grid by the project plant in year y (MWh/yr)
$EF_{grid,CM,y}$	Combined margin CO ₂ emission factor in year y (tCO ₂ e/MWh).

Calculation of BE_y - Guanbaodu

Period	$EG_{export,y}$ (MWh)	$EG_{import,y}$ (MWh)	$EF_{grid,CM,y}$ (tCO ₂ /MWh)	BE_y (tCO ₂ e)
01/01/2016-31/01/2016	1,279.39	0.56	0.5983	765.12
01/02/2016-29/02/2016	955.36	2.17	0.5983	570.29
01/03/2016-31/03/2016	1,051.68	0.00	0.5983	629.22
01/04/2016-30/04/2016	2,164.82	0.00	0.5983	1,295.21
01/05/2016-31/05/2016	2,150.61	0.00	0.5983	1,286.71
01/06/2016-30/06/2016	2,434.11	0.00	0.5983	1,456.33
01/07/2016-31/07/2016	1,869.28	1.26	0.5983	1,117.64
01/08/2016-31/08/2016	1,172.99	0.00	0.5983	701.80
01/09/2016-30/09/2016	717.36	2.80	0.5983	427.52
01/10/2016-31/10/2016	317.66	5.60	0.5983	186.71
01/11/2016-30/11/2016	459.97	5.46	0.5983	271.93
01/12/2016-31/12/2016	437.50	6.02	0.5983	258.15
Total from 01/01/2016-31/12/2016	15,010.73	23.87	-	8,966.64
01/01/2017-31/01/2017	633.22	3.15	0.5983	376.97
01/02/2017-28/02/2017	762.58	5.04	0.5983	453.24
01/03/2017-31/03/2017	980.07	0.84	0.5983	585.87
01/04/2017-30/04/2017	1,250.55	0.56	0.5983	747.87
01/05/2017-31/05/2017	1,647.08	0.63	0.5983	985.07
01/06/2017-30/06/2017	1,703.94	0.21	0.5983	1,019.34
01/07/2017-31/07/2017	2,029.09	0.77	0.5983	1,213.54
01/08/2017-31/08/2017	1,564.29	0.28	0.5983	935.75
01/09/2017-30/09/2017	1,601.11	0.07	0.5983	957.90
01/10/2017-31/10/2017	1,008.77	1.05	0.5983	602.92
01/11/2017-30/11/2017	588.91	3.29	0.5983	350.38
01/12/2017-31/12/2017	542.78	4.13	0.5983	322.27

	Total from 01/01/2017-31/12/2017	14,312.39	20.02	-	8,551.12
	Sum of this MP 01/01/2016 - 31/12/2017	29,323.12	43.89	0.5983	17,517
	Calculation of BE_y - Liangjiangkou				
	Period	EG_{export,y} (MWh)	EG_{import,y} (MWh)	EF_{grid,CM,y} (tCO₂/MWh)	BE_y (tCO₂e)
	01/01/2016-31/01/2016	651.056	0.056	0.5983	389.49
	01/02/2016-29/02/2016	501.116	0.112	0.5983	299.75
	01/03/2016-31/03/2016	380.212	0.308	0.5983	227.30
	01/04/2016-30/04/2016	902.636	0.028	0.5983	540.03
	01/05/2016-31/05/2016	1,022.420	0.028	0.5983	611.70
	01/06/2016-30/06/2016	1,071.168	0.028	0.5983	640.86
	01/07/2016-31/07/2016	750.288	0.056	0.5983	448.86
	01/08/2016-31/08/2016	269.640	1.456	0.5983	160.45
	01/09/2016-30/09/2016	394.884	0.672	0.5983	235.86
	01/10/2016-31/10/2016	152.348	0.000	0.5983	91.15
	01/11/2016-30/11/2016	195.104	1.876	0.5983	115.61
	01/12/2016-31/12/2016	150.612	1.904	0.5983	88.97
	Total from 01/01/2016-31/12/2016	6,441.48	6.52	-	3,850.04
	01/01/2017-31/01/2017	466.844	0.924	0.5983	278.76
	01/02/2017-28/02/2017	274.260	1.512	0.5983	163.19
	01/03/2017-31/03/2017	481.320	0.504	0.5983	287.67
	01/04/2017-30/04/2017	846.496	0.196	0.5983	506.34
	01/05/2017-31/05/2017	751.212	0.392	0.5983	449.22
	01/06/2017-30/06/2017	999.824	0.028	0.5983	598.18
	01/07/2017-31/07/2017	720.496	8.372	0.5983	426.06
	01/08/2017-31/08/2017	872.872	0.224	0.5983	522.11
	01/09/2017-30/09/2017	752.976	0.112	0.5983	450.44
	01/10/2017-31/10/2017	552.468	0.504	0.5983	330.24
	01/11/2017-30/11/2017	278.852	1.344	0.5983	166.03
	01/12/2017-31/12/2017	193.340	1.848	0.5983	114.57
	Total from 01/01/2017-31/12/2017	7,190.96	15.96	-	4,292.80
	Sum of this MP 01/01/2016 - 31/12/2017	13,632.44	22.48	0.5983	8,142
	Calculation of BE_y				
	Period	BE_y - Guanbaodu (tCO₂e)	BE_y - Liangjiangkou (tCO₂e)	BE_y (tCO₂e)	
	01/01/2016-31/01/2016	765.12	389.49	1,154.62	
	01/02/2016-29/02/2016	570.29	299.75	870.04	
	01/03/2016-31/03/2016	629.22	227.30	856.52	
	01/04/2016-30/04/2016	1,295.21	540.03	1,835.24	
	01/05/2016-31/05/2016	1,286.71	611.70	1,898.41	
	01/06/2016-30/06/2016	1,456.33	640.86	2,097.19	
	01/07/2016-31/07/2016	1,117.64	448.86	1,566.50	
	01/08/2016-31/08/2016	701.80	160.45	862.25	
	01/09/2016-30/09/2016	427.52	235.86	663.38	
	01/10/2016-31/10/2016	186.71	91.15	277.86	
	01/11/2016-30/11/2016	271.93	115.61	387.54	
	01/12/2016-31/12/2016	258.15	88.97	347.13	
	Total from 01/01/2016-31/12/2016	8,966.64	3,850.04	12,816	

	01/01/2017-31/01/2017		376.97	278.76	655.73
	01/02/2017-28/02/2017		453.24	163.19	616.42
	01/03/2017-31/03/2017		585.87	287.67	873.55
	01/04/2017-30/04/2017		747.87	506.34	1,254.21
	01/05/2017-31/05/2017		985.07	449.22	1,434.29
	01/06/2017-30/06/2017		1,019.34	598.18	1,617.52
	01/07/2017-31/07/2017		1,213.54	426.06	1,639.61
	01/08/2017-31/08/2017		935.75	522.11	1,457.85
	01/09/2017-30/09/2017		957.90	450.44	1,408.34
	01/10/2017-31/10/2017		602.92	330.24	933.16
	01/11/2017-30/11/2017		350.38	166.03	516.41
	01/12/2017-31/12/2017		322.27	114.57	436.84
	Total from 01/01/2017-31/12/2017		8,551.12	4,292.80	12,843
	Sum of this MP 01/01/2016 - 31/12/2017		17,517	8,142	25,659
	The baseline emission (BE) during this monitoring period are calculated as 25,659 tCO₂e .				
Findings	☐	The calculation of the baseline emissions was found to be fully compliant with the above stated principles. The calculations of baseline GHG emissions or baseline net GHG removals have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in emission or removal calculations have been justified. Appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information has been identified.			
	☒	The verification team has identified mistakes in the baseline emissions calculation or the underlying calculation approaches.			
	☒	In this context the following CARs, CLs, FARs have been raised: - CAR 4			
Conclusion	☐	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.			
	☒	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.			
	Where corrections were required a revised baseline emissions calculation was prepared by the PPs and presented to the verification team. All raised issues were addressed appropriately so that it can be confirmed that the baseline calculation is overall correct.				

D.8.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	During the verification the calculation of project GHG emissions has been checked. In detail the following has been verified: • Transparency: It has been checked whether the calculation of project emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae. • Parameter consistency: It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet. • Correctness: It has been checked whether the applied formulae and methods for calculating project emissions are in accordance with the monitoring plan and the approved methodology. • Completeness: It has been checked whether all calculations are complete and without omissions. The following sources of information have been used in this context:
------------------------------	--

- /MR/
- /PDD/
- /ACM0002/
- /XLS/
- /PSAR/

Project Emission Calculation Assessment:

The formula used for the determination of project emissions which is confirmed as consistent with the latest approved PDD and applied methodology:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

- PE_y = Project emissions (tCO₂/yr)
 $PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (tCO₂/yr)
 $PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO₂e/yr)
 $PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (tCO₂e/yr)

According to ACM0002, for all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected, so $PE_{FF,y} = 0$.

The project is not a geothermal power plant, thus $PE_{GP,y} = 0$.

Therefore, $PE_y = PE_{HP,y}$

The proposed hydropower project is a new project and results in a new reservoir, and its power density of is calculated as follows:

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$$

Where:

- PD = Power density of the project activity (W/m²)
 Cap_{PJ} = Installed capacity of the hydro power plant after the implementation of the project activity (W)
 Cap_{BL} = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero
 A_{PJ} = Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m²)
 A_{BL} = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m²). For new reservoirs, this value is zero

For the bundled two projects,

for Guanbaodou:

year 2016: $Cap_{BL} = 0$, $A_{BL} = 0$, $Cap_{PJ} = 4\text{MW}$, and $A_{PJ} = 327,000 \text{ m}^2$, therefore $PD = 12.23 \text{ W/m}^2$, which is greater than 10W/m^2 ;

year 2017: $Cap_{BL} = 0$, $A_{BL} = 0$, $Cap_{PJ} = 4\text{MW}$, and $A_{PJ} = 328,000 \text{ m}^2$, therefore $PD = 12.20 \text{ W/m}^2$, which is greater than 10W/m^2 ;

and for Liangjiangkou,

year 2016: $Cap_{BL} = 0$, $A_{BL} = 0$, $Cap_{PJ} = 1.89\text{MW}$, and $A_{PJ} = 177,700 \text{ m}^2$, therefore $PD = 10.64 \text{ W/m}^2$, which is greater than 10W/m^2 .

year 2017: $Cap_{BL} = 0$, $A_{BL} = 0$, $Cap_{PJ} = 1.89\text{MW}$, and $A_{PJ} = 177,500 \text{ m}^2$, therefore $PD = 10.65 \text{ W/m}^2$, which is greater than 10W/m^2 .

Therefore, according to ACM0002, $PE_{HP,y} = 0$, so $PE_y = PE_{HP,y} = 0$.

	The project emissions (PE _y) during this monitoring period is 0 tCO₂e .	
Findings	☒	The calculation of the project emissions was found to be fully compliant with the above stated principles. The calculations of project GHG emissions or actual net GHG removals have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in emission or removal calculations have been justified. Appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information have been identified.
	☐	The verification team has identified mistakes in the project emissions calculation or the underlying calculation approaches.
	☒	In this context the following CARs, CLs, FARs have been raised: - CAR 5
Conclusion	☐	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		Where corrections were required a revised project emissions calculation was prepared by the PPs and presented to the verification team. All raised issues were addressed appropriately so that it can be confirmed that the project calculation is overall correct.

D.8.3. Calculation of leakage GHG emissions

Means of verification	In accordance with ACM0002 ver. 16.0, registered PDD and validation report, leakage of the project activity is not considered. The following sources of information have been used in this context: • /MR/ • /PDD/ • /ACM0002/ • /XLS/	
Findings	☒	No leakage emissions were to be considered (LE = 0).
	☐	The calculation of the leakage emissions was found to be fully compliant with the above stated principles. The calculations of leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in leakage emissions calculations have been justified. Where applicable, appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information have been identified.
	☐	The verification team has identified mistakes in the leakage emissions calculation or the underlying calculation approaches.
	☒	In this context the following CARs, CLs, FARs have been raised: - CAR 6
Conclusion	☐	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		It can be confirmed that the no leakage emissions were to be considered (LE = 0).

D.8.4. Summary of calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	The verification team has checked if the MR includes a summary table of the emission reductions calculation specifying separately																					
	- Total baseline emissions, - Total project emissions, - Total leakage, - Total emission reductions.																					
	It has been assessed whether the values are correct or need to be revised as a consequence of issues identified above.																					
	Summary of emission reductions during the monitoring period:																					
	$ER_y = BE_y - PE_y$ $= BE_y$																					
	Where:																					
	ER_y	-Emission reductions (t CO ₂ e)																				
	BE_y	-Baseline Emissions (t CO ₂ e)																				
	PE_y	-Project Emissions (t CO ₂ e)																				
	Emission Reductions Calculation																					
<table><tr><th> Parameters Period </th><th>Baseline Emissions BE_y (tCO₂e)</th><th>Project Emissions PE_y (tCO₂e)</th><th>Leakage Emissions LE_y (tCO₂e)</th><th>Emission Reductions ER_y (tCO₂e)</th></tr><tr><td>01/01/2016-31/12/2016</td><td>12,816</td><td>0</td><td>0</td><td>12,816</td></tr><tr><td>01/01/2017-31/12/2017</td><td>12,843</td><td>0</td><td>0</td><td>12,843</td></tr><tr><td>Total</td><td>25,659</td><td>0</td><td>0</td><td>25,659</td></tr></table>		Parameters Period	Baseline Emissions BE_y (tCO ₂ e)	Project Emissions PE_y (tCO ₂ e)	Leakage Emissions LE_y (tCO ₂ e)	Emission Reductions ER_y (tCO ₂ e)	01/01/2016-31/12/2016	12,816	0	0	12,816	01/01/2017-31/12/2017	12,843	0	0	12,843	Total	25,659	0	0	25,659	
Parameters Period	Baseline Emissions BE_y (tCO ₂ e)	Project Emissions PE_y (tCO ₂ e)	Leakage Emissions LE_y (tCO ₂ e)	Emission Reductions ER_y (tCO ₂ e)																		
01/01/2016-31/12/2016	12,816	0	0	12,816																		
01/01/2017-31/12/2017	12,843	0	0	12,843																		
Total	25,659	0	0	25,659																		
<i>Note: The value for each civil year is a rounddown value after sum monthly basis of that year. Total value of this MP is a rounddown value after sum all year basis of this MP.</i>																						
All the figures as per the monitoring report were cross-checked by the verification team against basic monitored data. Refer to Appendix 5 for details. No malfunction of all the meters was detected during the monitoring period and the emergency procedure as indicated in the PDD and monitoring report was not adopted.																						
Findings	☒	Section 5.4 of the MR includes in a summary table of the emission reductions calculation.																				
	☒	The summary table specified the total baseline, project and leakage emissions as well as the total emission reductions separately.																				
	☐	The values as specified in the ER summary table are correct; no issues have been identified during the verification which requires changes in the ER calculation.																				
	☒	During the verification issues with impact on the ER calculation have been identified.																				
	☒	In this context the following CARs, CLs, FARs have been raised:																				
		- CAR 7																				
Conclusion	☐	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.																				
	☒	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.																				
	Where corrections where required a revised emission reductions calculation was prepared by the PPs and presented to the verification team. All raised issues were addressed appropriately so that it can be confirmed that the emission reductions calculation is overall correct.																					

D.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	The verification team has checked if the MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD. It has further checked which of the below listed cases is applicable for the calculated ER of the current monitoring period.	
Findings	☒	Case 1: The ex-ante estimated value was found to be proportionally higher than the ex-post determined value. No further action is deemed required.
	☐	Case 2: The ex-ante estimated value fits very good to the actually monitored value. No further justification is deemed required.
	☐	Case 3: The ex-ante estimated value was found to be proportionally lower than the ex-post determined value.
	☐	In this context the following CARs, CLs, FARs have been raised: - N/A
Conclusion	☒	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☐	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	The MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the latest approved PDD. It is confirmed that the ex-ante estimated value was found to be proportionally higher than the ex-post determined value.	

D.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	On the basis of the above comparison of actual values of the monitoring period with the estimations in the registered PDD (E.5) the verification team has checked whether (in case 3) an appropriate explanation is included in the MR.	
Findings	☐	No further justification or explanation is deemed required as actual emissions of this MP do not exceed significantly the ex-ante calculated emission reductions (applicable for case 1 and 2).
	☒	For case 3: The PP has provided a related justification in the MR. The reasons for the increase are as follows: - It is confirmed that the ex-ante estimated value was found to be proportionally higher than the ex-post determined value for this project during this monitoring period, however, for Liangjiangkou, the ex-ante estimated value was found to be proportionally lower than the ex-post determined. The reason is because that during the rainy season in 2017 the precipitation is a little bit higher than normal year.
	☒	In this context the following CARs, CLs, FARs have been raised: - CL 1
	☐	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
Conclusion	☒	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	It is confirmed that the ex-ante estimated value was found to be proportionally lower than the ex-post determined value for Liangjiangkou due to rainy season in 2017, the explanation is stated in Appendix 4.	

D.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	The verification team has checked chapter 5.4 of the MR and the emission reduction calculation sheet ^{/XLS/} .	
Findings	☒	The MR in section 5.4 includes a summary table of the ER breakdown

		until 2012-12-31 ¹⁾	from 2013-01-01 ¹⁾	Sum
	Emission reductions [tCO _{2e}]	0	25,659	25,659
	¹⁾ Both days included			
Conclusion	☒	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.		
	☐	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.		
	The data provided in the MR is correct as well as the related breakdown. The pro-rata approach was correctly applied to the calculations of GHG emission reductions or net anthropogenic GHG removals in accordance with the project standard, as the monitoring period starts after 01/01/2013 and ends anytime thereafter.			

SECTION E. Double Counting Assessment

The DOE has checked for double counting by reviewing all relevant registries including CDM^{/unfccc/}, VCS^{/vcs/} and other GHGs programs such as EU ETS, IREC or subnational, various regional schemes such as the Chinese, Canadian and American provincial/state-based schemes. It is confirmed that there is no potential exists for Double Counting of emissions reductions due to issuance of Gold Standard VERs/CO₂-certificates from the considered project activity.

SECTION F. Internal quality control

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

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

After the successful technical review an overall (esp. procedural) assessment of the complete verification has been carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the submission for requesting for issuance is conducted.

SECTION G. Verification opinion

Climate Bridge Ltd. has commissioned the TÜV NORD JI/CDM Certification Program to carry out the Gold Standard 6th periodic verification of the project: "Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project", with regard to the relevant requirements for GS project activities. The project reduces GHG emissions by utilize the hydro for power generation to displace the equivalent electricity generation by the CCPG. This verification covers the period from 01/01/2016-31/12/2017 (Including both days).

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.

- the monitoring plan is in accordance with the applied approved CDM methodology ACM0002 (version 16.0).
- the monitoring report is in accordance with the relevant GS requirements^{/GSR/}.
- the project contributes to sustainability development.
- The project has generated GHG emission reductions.

TÜV NORD JI/CDM CP further confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions:

Total	25,659 t CO₂e
01/01/2016-31/12/2016:	12,816 tCO ₂ e
01/01/2017-31/12/2017:	12,843 tCO ₂ e

SECTION H. Certification statement

As a duly accredited DOE, TÜV NORD CERT confirms that the project

“Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project”

registered under

GS-No. : 835

has achieved emission reductions in accordance with all applicable requirements for registered GS project activities during the current monitoring period

MP-No.: 6th

from: 01/01/2016

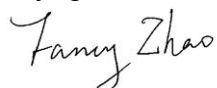
to: 31/12/2017

(including both days) as follows:

Emission reductions:

Total	25,659 t CO₂e
01/01/2016-31/12/2016:	12,816 tCO ₂ e
01/01/2017-31/12/2017:	12,843 tCO ₂ e

Beijing, 16/08/2018



Zhao Xuejiao
Team Leader

Appendix 1. Abbreviations

Abbreviations	Full texts
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CCPG	Central China Power Grid
CDM	Clean Development Mechanism
CL	Clarification Request
CO ₂	Carbon dioxide
CO _{2eq}	Carbon dioxide equivalent
CP	Crediting Period
DCS	Distributed Control System
DverR	Draft Verification Report
EIA	Environment Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GS	Gold Standard
GSR	Gold Standard Requirement
GST	Gold Standard Toolkit
GSP	Gold Standard Passport
MP	Monitoring Plan
MR	Monitoring Report
PA	Project Activity
PDD	Project Design Document
PDR	Preliminary Design Report
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
SD	Sustainability Development
SDI	Sustainability Development Indicator
SDM	SD Matrix
UNFCCC	United Nations Framework Convention on Climate Change
VER	Voluntary Emission Reduction
VVS	Validation and Verification Standard
XLS	Emission Reduction Calculation Spread Sheet

Appendix 2. Competence of team members and technical reviewers



Statement of Competence
Appointment and authorization according to the procedures
of the TUV NORD J/CDM Certification Program

Ms. Xue Jiao Fancy Zhao

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2019-11-01
VCS / ISO 14064-2	Senior Assessor	2019-11-01

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy Demand
8.1	Mining and mineral production
13.1	Solid waste and wastewater
13.2	Manure

230- Rev. 8, Date: 2018-06-06

230_201-VA050-F20_2018-06-06_rev8.doc
201-VA050-F20 rev8 / 2018-10-26



Statement of Competence
Appointment and authorization according to the procedures
of the TUV NORD J/CDM Certification Program

Mr. Stefan Winter

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2020-07-27
VCS	Senior Assessor (Validation, Verification) Technical Reviewer	2020-07-27

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
2.1	Energy distribution
3.1	Energy demand
4.1	Cement and lime production
4.2	Paper
5.2	Caprolactam, nitric and adipic acid
9.1	Aluminium and magnesium production
9.2	Iron, steel and Ferro-alloy production
13.1	Solid waste and wastewater
13.2	Manure

163 – Rev. 5, Date: 2017-07-20

163_801-VA050-F20_2017-07-20_rev5
801-VA050-F20 rev3 / 2012-10-26

Appendix 3. Documents reviewed or referenced

No	Author	Title	References to the document	Provider
1	Jingzhou Miao & Dong Autonomous County Environmental Protection Bureau(Guanbaodu) And Tongdao Dong Autonomous Environmental Protection Bureau (Liangjiangkou)	Approval of EIA ^{/AEIA/}	EIA Approval of Guanbaodu project on 20/11/2005 EIA Approval of Liangjiangkou project on 12/07/2006	Project Owner
2	Huaihua City Huaihua Water Conservancy Bureau(Guanbaodu) And Tongdao Dong Autonomous County Water Authority (Liangjiangkou)	Approval of PDR ^{/APDR/}	PDR Approval of Guanbaodu project on 15/07/2005 PDR Approval of Liangjiangkou project on 23/07/2006	Project Owner
3	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd.	Annual revenue report ^{/ARR/}	Annual revenue report of Guanbaodu Project for year 2016 and 2017	Project Owner
4	Jingzhou County Administrative Bureau for Industry and Commerce (Guanbaodu) & Tongdao County Administrative Bureau for Industry and Commerce (Liangjiangkou)	Business License ^{/BL/}	Business License of Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. (project owner of Guanbaodu hydropower project) and Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (project owner of Liangjiangkou hydropower project)	Project Owner
5	Hongjiang City Quality Supervision, Inspection and Measuring Verification Institute	Calibration certificates ^{/CAL/}	Guanbaodu: Calibration Certificates for gateway meter M2, dated on 20/05/2015, 18/05/2016 and 16/05/2017 valid to 15/05/2018 Calibration Certificates for back-up meter M1, dated on 20/05/2015, 18/05/2016 and 16/05/2017 valid to 15/05/2018	Project Owner
	Hunan Province Huaihua Electric Power Bureau Tongdao Electric Power Company		Liangjiangkou: Calibration Certificates for gateway meter M1, dated on 12/05/2015, 11/05/2016 and 11/05/2017 valid to 10/05/2018	Project Owner
6	Hunan Province Bureau of Quality & Technical Supervision	Certificate of Metrological Authorization ^{/CMA/}	Certificate of metrological authorization to Hongjiang City Quality Supervision, Inspection and Measuring Verification Institute, issued on 2014-06-29, the valid period is to 2019-06-28	Project Owner

No	Author	Title	References to the document	Provider
	Huaihua City Bureau of Quality & Technical Supervision		Certificate of Metrological Authorization of Measuring Centre of Hunan Province Huaihua Electric Power Bureau Tongdao Electric Power Company on 2016-05-26, the valid period is to 2019-05-25.	Project Owner
7	Huaihua City Environmental Protection Bureau(Guanbaodu) And Hunan Province Huaihua City Tongdao Hydropower Check and Accept Commission (Liangjiangkou)	Acceptance of Environmental Protection ^{/EAEP/}	Acceptance of Environmental Protection of Guanbaodu project issued by Hunan Province Huaihua City Environmental Protection Bureau dated 2013-02-06. Acceptance of Environmental Protection of Liangjiangkou project issued by Hunan Province Huaihua City Tongdao Hydropower Check and Accept Commission dated in Dec. 2009.	Project Owner
8	Huaihua City Jingzhou Power Company (Guanbaodu) And Huaihua City Tongdao Power Company (Liangjiangkou)	Electricity Balance Sheet ^{/EBS/}	Electricity Balance Sheet covering this monitoring period Guanbaodu Project - Monthly and Daily electricity balance sheet of Meters M2 - Monthly and Daily electricity balance sheet of Meters M1 - Electricity Sales and Purchase Invoices - Electricity balance sheet during 26/12/2015 to 31/12/2015 and during 26/12/2017 to 31/12/2017. Liangjiangkou Project - Monthly and Daily electricity balance sheet of Meters M1 - Electricity Sales and Purchase Invoices - Electricity balance sheet during 26/12/2015 to 31/12/2015 and during 26/12/2017 to 31/12/2017.	Project Owner
9	Huaihua Environmental Protection Research Institute	Enrironment Impact Assessment ^{/EI^A/}	EIA of Guanbaodu project finished by Huaihua Environmental Protection Research Institute on 19/10/2005 EIA of Liangjiangkou project finished by Huaihua Environmental Protection Research Institute on 05/07/2006	Project Owner
10	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. (Guanbaodu) And Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (Liangjiangkou)	Employment Contract ^{/EC/}	Employment Contracts of both plants	Project Owner

No	Author	Title	References to the document	Provider
11	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. (Guanbaodu) And Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (Liangjiangkou)	LOG ^{/LOG/}	Log of each sub-project • Power plant daily operation log. • Power plant daily dispatch log. • Maintenance plan and records. • Electric equipments operation records. • Duty shift records. • Hourly power generation statistics from DCS. • Daily power generation statistics from DCS. • Monthly power generation statistics from DCS.	Project Owner
12	Huaihua City Jingzhou Power Company	Meter Direction Change Record ^{/MDCR/}	Guanbaodu: Gateway Meter (M2) Direction Change Record issued by Huaihua City Jingzhou Power Company dated on 16/05/2017	Project Owner
13	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. (Guanbaodu) And Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (Liangjiangkou)	Monitoring Manual ^{/MM/}	Monitoring Manual for the project activity and project site management rules and regulations for each power plant	Project Owner
14	Climate Bridge Ltd.	Monitoring Report ^{/MR/}	Monitoring Report of Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project • version 1 dated 10/05/2018 • version 2 dated 18/07/2018	Climate Bridge Ltd.
15	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. (Guanbaodu) And Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (Liangjiangkou)	Management Regulation of Environment and Health ^{/MREH/}	Management Regulation of Environment and Health for Guanbaodu project dated in Mar. 2016 and Mar. 2017 Management Regulation of Environment and Health for Liangjiangkou project dated in Oct. 2016 and Oct. 2017	Project Owner
16	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. (Guanbaodu) And Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (Liangjiangkou)	Meter Reading Records ^{/MRR/}	Meter Reading Records of this monitoring period which was confirmed by the grid company Gateway Meter M2 of Guanbaodu, Backup Meter M1 of Guanbaodu, Gateway Meter M1 of Liangjiangkou	Project Owner
17	Jingzhou Miao & Dong Autonomous County Guanbaodu	Project Operation and	Project Operation and Maintenance Records and Regulations of each sub-project	Project Owner

No	Author	Title	References to the document	Provider
	Hydropower Co., Ltd. (Guanbaodu) And Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (Liangjiangkou)	Maintenance Records ^{/O&M/}	• Sample copy of O&M records • Hydro power Operation Safety Management Regulations • Routing inspection operation instruction • Routing inspection line diagram • Fire emergency plan	
18	Xiangtan water conversation & hydropower engineering exploration & design institute, Hunan Province (Guanbaodu) And Jingzhou Miao & Dong Autonomous water conversation & hydropower engineering exploration & design institute (Liangjiangkou)	Preliminary Design Report ^{/PDR/}	PDR of Guanbaodu project finished in May 2005 PDR of Liangjiangkou project finished in May 2006	Project Owner
19	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. (Guanbaodu) And Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (Liangjiangkou)	Payroll of Every Staff ^{/PES/}	Monthly Payroll of Every Staff for Guanbaodu Project for this monitoring period Monthly Payroll of Every Staff for Liangjiangkou Project for this monitoring period	Project Owner
20	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. (Guanbaodu) And Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (Liangjiangkou)	Proof of insurance ^{/PI/}	Proof of insurance of Every Staff for Guanbaodu Project for this monitoring period Proof of insurance of Every Staff for Liangjiangkou Project for this monitoring period	Project Owner
21	Hunan Province Huaihua City Jingzhou Power Company (Guanbaodu) And Hunan Province Huaihua City Tongdao Power Company (Liangjiangkou)	Power Purchase Agreement ^{/PPA/}	Power Purchase Agreement signed by the Guanbaodu project owner with Hunan Province Huaihua City Jingzhou Power Company for year 2016 and 2017 covering this monitoring period; Power Purchase Agreement signed by the Liangjiangkou project owner with Hunan Province Huaihua City Tongdao Power Company for year 2016 and 2017 covering this monitoring period	Project Owner

No	Author	Title	References to the document	Provider
22	Jingzhou Miao and Dong Autonomous County Hydro Management Station (Guanbaodu) And Tongdao Dong Autonomous County Water Conservancy Bureau (Liangjiangkou)	Proof of Surface Area ^{/PSAR/}	Measurement Report of reservoir area for Guanbaodu project by Jingzhou Miao and Dong Autonomous County Flood Control and Drought Prevention Office, dated 28/06/2016 and 28/06/2017 covering this monitoring period Measurement Report of reservoir area for Liangjiangkou project by Tongdao Dong Autonomous County Reservoir and Immigration Authority dated 05/06/2016 and 05/06/2017 covering this monitoring period	Project Owner
23	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. (Guanbaodu) And Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (Liangjiangkou)	Power Wiring Diagram ^{/PWD/}	Power Wiring Diagrams of each sub-project	Project Owner
24	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. (Guanbaodu) And Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (Liangjiangkou)	QA/QC procedures ^{/QAQC/}	QA/QC procedures of implementation of each sub-project, including the emergency response procedure	Project Owner
25	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. (Guanbaodu) And Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (Liangjiangkou)	Training and Competence Records ^{/TCR/}	Project Responsibilities, Training and Competence Records • Project Organization Chart and responsibilities • Sample of Staff Training Records • Operator working certificates • Sample of Internal audit record covering this monitoring period	Project Owner
26	Henan Ruifa Hydropower Equipment Co., Ltd. (Guanbaodu) And Hunan Allonward Hydro-Generating Equipment Co., Ltd. (Liangjiangkou)	Technical Particulars of equipment ^{/TP/}	Technical Particulars of hydro turbine and generator - the annex of equipment purchase contract of each sub-project	Project Owner
27	Climate Bridge Ltd.	Emission Reduction Calculation Sheets ^{/XLS/}	Emission Reduction Calculation sheets (related to MR) • version 01 dated 10/05/2018 • version 02 dated 18/07/2018	Climate Bridge Ltd.

No	Author	Title	References to the document	Provider
28	UNFCCC	ACM0002 /ACM0002/	Approved CDM methodology ACM0002: “Grid-connected electricity generation from renewable resources” (Version 16.0)	UNFCCC Website
29	Gold Standard	Gold Standard Annexes/ ^{Annex-GS/}	Gold Standard Annexes http://www.cdmgoldstandard.org/project-certification/rules-and-toolkit	Gold Standard
30	TÜV NORD JI / CDM Certification Program	CP Manual/ ^{CPM/}	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)	TÜV NORD JI / CDM Certification Program
31	National Standard	Technical administration code of meter/ ^{DLT/}	DL/T 448-2000 technical administration code of electricity energy metering	National Standard Website http://gb-china.cn/
32	Gold Standard	Gold Standard Requirement /GSR/	Gold Standard Requirement version 1.0	Gold Standard
33	Gold Standard	Gold Standard Toolkit/ ^{GST/}	Gold Standard Toolkit version 2.2	Gold Standard
34	Intergovernmental Panel on Climate Change	IPCC Guidelines/ ^{IPCC/}	1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	www.ipcc-nggip.iges.or.jp
35	National Standard	Power metering device calibration standards/ ^{JJG/}	Verification regulation of electric watt-hour meters (JJG596-1999)	National Standard Website http://gb-china.cn/
36	UNFCCC	Kyoto Protocol/ ^{KP/}	Kyoto Protocol (1997)	UNFCCC
37	UNFCCC	Marrakesh – Accords/ ^{MA/}	Decision 3/CMP. 1 (Marrakesh – Accords)	UNFCCC
38	Climate Bridge Ltd.	Project Design Document/ ^{PDD/}	2 nd Crediting Period Project Design Document for GS-VER project: “Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project” version 09, dated 39/03/2016.	Gold Standard
39	On-site Verification Team	Photographs of Project Site/ ^{PHT/}	Photographs of Project Site, Hydro turbines, Generators, Central Control Room, DCS System, all the meters and nameplate of the equipments took by the validation team during on-site for both Guanbaodu and Liangjiangkou Projects	On-site Verification Team
40	UNFCCC	Project Standard/ ^{PS/}	CDM Project Standard for project activity (Version 01.0)	UNFCCC
41	Hunan Province Quality and Technology Supervision Bureau	Standard of Quota for Water Use/ ^{SWU/}	Standard of Quota for Water Use (DB43/T 388-2008)	Public website

No	Author	Title	References to the document	Provider
42	UNFCCC	Methodological Tool ^{/TEF/}	Tool to calculate the emission factor for an electricity system (version 05.0)	UNFCCC
43	TUV NORD	Validation Report ^{/VAL/}	2 nd Crediting Period Validation Report for GS project "Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project" Rev No. 1, 29/03/2016	Gold Standard
44	UNFCCC	Verification Reports ^{/VER/}	Previous verification: MR and Verification Report Refer to https://mer.markit.com/br-reg/public/project.jsp?project_id=103000000002094	Gold Standard
45	UNFCCC	Validation and Verification Standard ^{/VVS/}	CDM Validation and Verification Standard for project activity (Version 01.0)	UNFCCC
46	Hunan Provincial Statistic Bureau	Average level of salary in rural area of Hunan Province ^{/alhp/}	Hunan Statistical Bureau data for the staff salary in rural area	http://www.hntj.gov.cn/tjfx/tjgb/jjzgb/201803/t20180313_4970734.html
47	-	DNA of China ^{/dna/}	www.cdm.ccchina.gov.cn	Website
48	Gold Standard Organization	Gold Standard ^{/gs/}	http://www.goldstandard.org/	Website
49	IPCC	IPCC publications ^{/ipc/}	www.ipcc-nggip.iges.or.jp	Website
50	Ministry of Environmental Protection of China	Environmental Protection ^{/mepc/}	http://www.zhb.gov.cn/	Website
51	Hunan Huaihua Hydrology and Water Resources Survey Bureau	Precipitation in 2016 and 2017 of Tongdao County ^{/pt/}	http://www.hnsw.com.cn/0745/tabid/2293/5867pageidx/1/Default.aspx	Website
52	UNFCCC	UNFCCC ^{/unfccc/}	http://cdm.unfccc.int	Website
53	VCS	VCS ^{/vcs/}	http://www.v-c-s.org/	Website

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FAR from validation and/or previous verification

FAR ID	<i>n.a</i>	Section no.		Date:
Description of FAR				
Project participant response (1st round)				Date:
Documentation provided by project participant (1st round)				
☐	Changes in the PDD	Section(s):	New version No.:	
☐	Changes in MR	Section(s):	New version No.:	
☐	Changes in XLS	Worksheet(s):	New version No.:	
☐	Other:			
DOE assessment (1st round)				Date:
Conclusion <i>Tick the appropriate checkbox</i>		☐ Additional action should be taken (finding remains open) ☐ The finding is closed		

Table 2. CL from this verification

CL ID	1	Section no.	5.5	Date:	04/06/2018
Description of CL					
In section 5.5,					
1. The number of dates during this monitoring period is not correct.					
2. The actual values of precipitation in year 2017 and normal year are not specified for Liangjiangkou.					
Project participant response (1st round)					
1. The number of dates has been revised in the update MR.					
2. For year 2016, the actual ER is only 5.5% higher than estimated value in PDD, while for year 2017, the actual ER is 17.6% higher than estimated value in PDD. It is because the precipitation in 2016 of Tongdao County was 16.28% higher than historical average year (which was used to estimate the power generation and emission reduction in PDD in PDR), and precipitation in 2017 of Tongdao County was 48.5% higher than historical average year, so the electricity generation in 2016 and 2017 was higher than previous years which is reasonable.					
Documentation provided by project participant (1st round)					Date:
					18/07/2018
☐	Changes in the PDD	Section(s):	New version No.:		
☒	Changes in MR	Section(s): 5.5	New version No.: 02		
☒	Changes in XLS	Worksheet(s): Comparison with PDD estimation	New version No.: 02		
☒	Other:	/TP/, /PDR/, /pt/			
DOE assessment (1st round)					Date:
					18/07/2018
1. The revised MR is checked, it is confirmed that the number of dates during this monitoring period is correct.					
2. Due to this monitoring period, the actual emission reduction of Liangjiangkou was found 11.4% higher than the estimated emission reduction in the PDD. The DOE confirmed that the project installations and capacity are in line with the PDD via checking the nameplate of the hydro turbines and generators ^{PHT/} and Technical Particulars of Hydro Turbine and Generator ^{TP/} . Hence, the higher emission reduction is not caused by the change of project installations and capacity. Via checking the registered PDD, the estimated emission reductions in the PDD are calculated and based on the electricity generation sourced from the Liangjiangkou PDR ^{PDR/} . While through checking the PDR, the amount of electricity generation mainly depends on precipitation in historical average year.					

By means of checking the precipitation data issued by the Hunan Huaihua Hydrology and Water Resources Survey Bureau ^{pt/} , it is confirmed that the precipitation in 2016 of Tongdao County was 16.28% higher than historical average year, and precipitation in 2017 of Tongdao County was 48.5% higher than historical average year. Hence, it is confirmed that actual emission reduction during this monitoring period which is 11.4% higher than the amount of designed supplied electricity in PDR and PDD is reasonable.	
Conclusion <i>Tick the appropriate checkbox</i>	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Table 3. CAR from this verification

CAR ID	1	Section no.	1.1	Date:	04/06/2018
Description of CAR					
In the Secion 1.1 of the MR, the number and duration of crediting period is not correct.					
Project participant response (1 st round)					
The number and duration of crediting period has been revised in the update MR.					
The second renewable crediting period of the project is: 01/01/2016 – 31/12/2022.					
Documentation provided by project participant (1 st round)				Date: 18/07/2018	
☐	Changes in the PDD		Section(s):	New version No.:	
☒	Changes in MR		Section(s): 1.1	New version No.: 02	
☐	Changes in XLS		Worksheet(s):	New version No.:	
☐	Other:				
DOE assessment (1 st round)				Date: 18/07/2018	
The revised MR is checked, it is confirmed that the number and duration of crediting period is correct.					
Conclusion		☐ Additional action should be taken (finding remains open)			
Tick the appropriate checkbox		☒ The finding is closed			

CAR ID	2	Section no.	4.1	Date:	04/06/2018
Description of CAR					
In the Section 4.1 of the MR, the version and name of the methodology is not in line with the applied methodology.					
Project participant response (1 st round)					
Revised to: Approved CDM methodology ACM0002: "Grid-connected electricity generation from renewable resources" (Version 16.0)					
Documentation provided by project participant (1 st round)				Date: 18/07/2018	
☐	Changes in the PDD		Section(s):	New version No.:	
☒	Changes in MR		Section(s): 4.1	New version No.: 02	
☐	Changes in XLS		Worksheet(s):	New version No.:	
☐	Other:				
DOE assessment (1 st round)				Date: 18/07/2018	
The MR is checked as revised, the version and name of the methodology is confirmed in line with the applied methodology via comparing the UNFCCC website.					
Conclusion Tick the appropriate checkbox		☐ Additional action should be taken (finding remains open) ☒ The finding is closed			

CAR ID	3	Section no.	4.1	Date:	04/06/2018
Description of CAR					
It is observed that the calibration of meters of Guanbaodu and Liangjiangkou is not covering this monitoring period.					
Project participant response (1 st round)					
It is a typo mistake, calibration in 2015 is missing. The calibration date has been supplemented which can cover the whole monitoring period.					
Documentation provided by project participant (1 st round)				Date: 18/07/2018	
☐	Changes in the PDD		Section(s):	New version No.:	
☒	Changes in MR		Section(s): 4.1	New version No.: 02	
☐	Changes in XLS		Worksheet(s):	New version No.:	
☒	Other:		/CAL/		
DOE assessment (1 st round)				Date: 18/07/2018	

The revised MR is checked, it is confirmed that the calibration in year 2015 is provided, thus calibration of meters of Guanbaodu and Liangjiangkou is covering this monitoring period. Through checking the calibration certificate^{CAL}, it is verified that the calibration information is actual and correct.

Conclusion Tick the appropriate checkbox	☐ Additional action should be taken (finding remains open) ☒ The finding is closed
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CAR ID	4	Section no.	5.1	Date:	04/06/2018
Description of CAR					
It is observed that in section 5.1, the value of EF _{grid,CM,y} is not in line with the PDD.					
Project participant response (1 st round)					
It is a typo mistake, the value of EF _{grid,CM,y} has been revised in the update MR as 0.5983 tCO ₂ e/MWh.					
Documentation provided by project participant (1 st round)				Date: 18/07/2018	
☐	Changes in the PDD		Section(s):	New version No.:	
☒	Changes in MR		Section(s): 5.1	New version No.: 02	
☐	Changes in XLS		Worksheet(s):	New version No.:	
☐	Other:				
DOE assessment (1 st round)				Date: 18/07/2018	
The revised MR is checked, it is confirmed that the value of EF _{grid,CM,y} has been revised and in line with the registered 2 nd crediting period GS PDD.					
Conclusion Tick the appropriate checkbox		☐ Additional action should be taken (finding remains open) ☒ The finding is closed			

CAR ID	5	Section no.	5.2	Date:	04/06/2018
Description of CAR					
It is observed that in section 5.2,					
1. the version of methodology is not in line with PDD;					
2. the calculation process of PD during this monitoring period is missing.					
Project participant response (1 st round)					
1. the version of methodology has been revised in the update MR to 16.0;					
2. the calculation process of PD has been added in the update MR.					
The project is a new hydropower project and results in a new reservoir, According to ACM0002 (Version 16.0), its power density of is calculated as follows:					
$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$					
Where:					
PD = Power density of the project activity (W/m ²)					
Cap _{PJ} = Installed capacity of the hydro power plant after the implementation of the project activity (W)					
Cap _{BL} = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero					
A _{PJ} = Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m ²)					
A _{BL} = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m ²). For new reservoirs, this value is zero					
For the bundled two projects, for Guanbaoodu:					
Cap _{BL} = 0, A _{BL} = 0, and as listed in section 4.1, Cap _{PJ} = 4MW, and the area of reservoir A _{PJ} in 2016 and 2017 was 327,000 m ² and 328,000 m ² separately, so the power density PD in 2016 and 2017 was 12.23 W/m ² and 12.23 W/m ² separately, which are both greater than 10W/m ² ;					
and for Liangjiangkou,					
Cap _{BL} = 0, A _{BL} = 0, Cap _{PJ} = 1.89MW, and the area of reservoir A _{PJ} in 2016 and 2017 was 177,700 m ² and 177,500 m ² separately, so the power density PD in 2016 and 2017 was 10.64 W/m ² and 10.65 W/m ² separately, which are both greater than 10W/m ² .					
Therefore, according to ACM0002, the project emissions resulting from the project are zero. PE _y = 0 tCO ₂ e.					
Documentation provided by project participant (1 st round)				Date: 18/07/2018	
☐	Changes in the PDD		Section(s):	New version No.:	
☒	Changes in MR		Section(s): 5.2	New version No.: 02	
☐	Changes in XLS		Worksheet(s):	New version No.:	

☒ Other:	/PSAR/
DOE assessment (1st round)	
Date: 18/07/2018	
1. The version is confirmed as correct and consistent with other parts of the MR. 2. The formula used for the determination of project emissions is confirmed as consistent with the approved PDD and applied methodology. Via checking the Measurement Report of reservoir area for Guanbaodu project by Jingzhou Miao and Dong Autonomous County Flood Control and Drought Prevention Office, dated 28/06/2016 and 28/06/2017 covering this monitoring period ^{/PSAR/} and Measurement Report of reservoir area for Liangjiangkou project by Tongdao Dong Autonomous County Reservoir and Immigration Authority dated 05/06/2016 and 05/06/2017 covering this monitoring period ^{/PSAR/} , it is verified that the area of reservoir A_{PJ} in 2016 and 2017 for both plants are correct and thus PD calculation is correct.	
Conclusion Tick the appropriate checkbox	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	6	Section no.	5.3	Date:	04/06/2018
Description of CAR					
It is observed that in section 5.3, the version of methodology is not in line with PDD.					
Project participant response (1st round)					
The version of methodology has been revised in the update MR.					
Documentation provided by project participant (1st round)					Date:
					18/07/2018
☐	Changes in the PDD	Section(s):	New version No.:		
☒	Changes in MR	Section(s): 5.3	New version No.: 02		
☐	Changes in XLS	Worksheet(s):	New version No.:		
☐	Other:				
DOE assessment (1st round)					Date:
					18/07/2018
The version is confirmed as correct and consistent with other parts of the MR.					
Conclusion Tick the appropriate checkbox	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				

CAR ID	7	Section no.	5.4	Date:	06/06/2018
Description of CAR					
It is observed that in section 5.4,					
1. The ER calculation formula is not in line with the PDD. 2. The ER calculation result of year 2016 and 2017 and the total value are not rounddown in both MR and ER sheet.					
Project participant response (1st round)					
1. The ER calculation formula has been revised in the update MR; 2. The ER calculation result of year 2016 and 2017 and the total value has been round down in the update MR and ER sheet.					
Documentation provided by project participant (1st round)					Date:
					18/07/2018
☐	Changes in the PDD	Section(s):	New version No.:		
☒	Changes in MR	Section(s): 5.4	New version No.: 02		
☒	Changes in XLS	Worksheet(s): ER	New version No.: 02		
☐	Other:				
DOE assessment (1st round)					Date:
					18/07/2018
1. The revised MR is checked, ER calculation formula is confirmed as in line with the PDD and applied methodology. 2. The revised MR and ER sheet is checked, the ER calculation result of year 2016 and 2017 and the total value are confirmed as rounddown in both MR and ER sheet.					
Conclusion Tick the appropriate checkbox	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				

Table 4. FAR from this verification

FAR ID	XX	Section No.		Date:	DD/MM/YYYY
Description of FAR					
Project participant response					Date:
					DD/MM/YYYY

Documentation provided by project participant			
☐	Changes in the PDD	Section(s):	New version No.:
☐	Changes in MR	Section(s):	New version No.:
☐	Changes in XLS	Worksheet(s):	New version No.:
☐	Other:		
DOE assessment			Date: DD/MM/YYYY
Conclusion <i>Tick the appropriate checkbox</i>		☐ To be checked during the next periodic verification	

Appendix 5. Monitored Parameters

Table A-5: Periodic Verification Checklist – Monitored Parameters

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
A. $EG_{export,y}$		Quantity of electricity exported to the grid by the project plant in year y (MWh/yr)		
a) Measurement / Determination method (VVS, §§ 389-393) Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level but also describe the applied data aggregation trails (from ODL to data aggregation level zero). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/I1/ /PDD/ /ACM000 2/ /CAL/ /XLS/ /MRR/ /EBS/ /PPA/ /PWD/ /MDCR/	<i>Description:</i> Guanbaodu Project $EG_{export,y}$ is measured continuously by gateway meter M2, gateway meter M2 is installed at the Gantang Transformer Station and owned by local power company with accuracy of 0.5s and recorded monthly at 24:00h on 25th of each month. The electricity during 26/12/2015 to 31/12/2015 has been deducted and the electricity during 26/12/2017 to 31/12/2017 has been added for December 2017, the relevant data is confirmed by checking PO's reading records^{/MRR/} which have been confirmed by the grid company^{/EBS/}. The gateway meter monitors the amount of electricity exported to the grid by the project. The meter readings are recorded by the grid company daily and aggregated monthly. Meanwhile, the automatic monitoring system collects the data from the meters every day and delivers them to the grid company. The meter readings are recorded by the grid company, based on that, related monthly balance sheets and invoices have been issued. M1 installed at the power station is the backup meter. When the Gateway Meter is in malfunction, the readings of M1 will be used for reference. The accuracy of M1 is 0.5. Neither failure of Gateway Meter M2 and backup meter M1 were detected during the monitoring period.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		During this monitoring period, meter direction of Gateway Meter M2 was changed on 16/05/2017 according to the requirements by Power Grid Company^{/MDCR/}. It means the meter readings of exported and imported electricity has also been exchanged. Therefore, there were two reading records in May 2017^{/EBS/}, but the accuracy and other parameters of M2 remained the same, and no failure of the meter occurred during this monitoring period. So there was no influence on the ER calculation due to the exchange. Furthermore the monitoring system is still in line with the methodology and the registered PDD. The DOE has checked all related calibration certificates and confirms that the calibration of each meter is valid for the entire 6th monitoring period^{/CAL/}. The data aggregation procedure applied by the PP is shown as follow: 1. $EG_{export,y}$ is measured continuously by Gateway Meter M2, the operators read the value from the Gateway Meter M2 at 24:00 per day. Based on the difference between the two meter values for each meter on 0:00 (24:00 of the day before) and 24:00 for the day the power supplied for that day is determined. Accordingly the operator issues the daily reports. The daily reports record the quantities of gross power supplied per day (DAL-2=ODL). 2. Based on the daily reports for a month, the PP issues a corresponding monthly report. The sum of the quantities of gross power supplied per day is the final result as shown in the monthly report (DAL-1). 3. Based on the monthly reports, the final monthly value was reported in the monitoring report (DAL0). Liangjiangkou Project $EG_{export,y}$ is measured continuously by gateway meter M1, gateway meter M1 is installed at the Shuangjiang Transformer Station and owned by local power company with accuracy of 0.5s		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		and recorded monthly at 24:00h on 25th of each month. The electricity during 26/12/2015 to 31/12/2015 has been deducted and the electricity during 26/12/2017 to 31/12/2017 has been added for December 2017, the relevant data is confirmed by checking PO's reading records^{/MRR/} which have been confirmed by the grid company^{/EBS/}. The gateway meter monitors the electricity delivered to the grid through the project. The meter readings are recorded by the grid company daily and aggregated monthly. Meanwhile, the automatic monitoring system collects the data from the meters every day and delivers them to the grid company. The meter readings are recorded by the grid company jointly with PP, based on that, related monthly balance sheets and invoices have been issued. Neither failure nor exchange of Gateway Meter M1 was detected during the monitoring period. The data aggregation procedure applied by the PP is shown as follow: 1. $EG_{export, y}$ is measured continuously by Gateway Meter M1, the operators read the value from the Gateway Meter M1 at 24:00 per day. Based on the difference between the two meter values for each meter on 0:00 (24:00 of the day before) and 24:00 for the day the power supplied for that day is determined. Accordingly the operator issues the daily reports. The daily reports record the quantities of gross power supplied per day (DAL-2=ODL). 2. Based on the daily reports for a month, the PP issues a corresponding monthly report. The sum of the quantities of gross power supplied per day is the final result as shown in the monthly report (DAL-1). 3. Based on the monthly reports, the final monthly value was reported in the monitoring report (DAL0).		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<i>Verifier's action:</i> This was verified by on-site interview, by observations and by cross checking with calibration records, registered PDD and applied methodology against the ER calculation spreadsheet. Furthermore, the following actions have been taken by the verification team to check the correctness of the data aggregation. The reported value in the MR has been recalculated by the verification team based on the values from the monthly reports. Based on monthly reports and the underlying original data, the verification team calculated the data aggregation completely independent from the calculation provided by the PP. 100% of the daily and monthly reports have been verified. The values have been crosschecked with electricity sales invoices. <i>Conclusion:</i> The measurement is documented as per registered PDD and applied methodology ACM0002 version 16.0.		
b) Accuracy and QA/QC Procedure (VVS, §§ 394-400) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i>	/CAL/ /CMA/ /EBS/ /MRR/ /DLT/ /JJG/ /TCR/ /QAQC/ /O&M/	<i>Description:</i> The calibration of all the meters were performed annually by a qualified 3rd party entity which according to national industry standard /JJG/&/DLT/ and records maintained /CAL/. QA/QC procedure for meter calibration maintenance and recording; procedure for monitoring staff training and competence were established and implemented. The data flow and protection process was observed during the on-site verification. For Guanbaodu, in case the Gateway Meter is out of order the backup meter readings will be applied. For Liangjiangkou, in case the Gateway Meter is out of order the ERs will not be claimed by PP.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		The calibration is valid for the entire monitoring period. The monitored data will be kept for two years after the last issuance of ERs. <i>Verifier's action:</i> The above mentioned was verified by cross checking the monthly power invoices, the meter readings and calibration records against the MR, internal audit records and ER sheet against the MR. Further, an on-site interview has been conducted and the procedures for meter calibration maintenance and recording as well as for monitoring staff training and competence have been cross checked. <i>Conclusion:</i> The accuracy of equipment used for monitoring is checked as controlled and calibrated in accordance with the monitoring plan.		
c) Correctness (VVS, §§ 389-393) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i> <i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i>	/MR/ /EBS/ /MRR/ /QAQC/ /LOG/ /XLS/ /TCR/	☒ Correct ☐ Not correct (initial assessment) <i>Description:</i> The electricity of $EG_{export,y}$ during this monitoring period is reported in the MR based on the meters readings, electricity balance sheets and sales invoices of both plants. The total value is the sum of both plants which used for ER calculation. <i>Verifier's action:</i> By means of checking the ER-spreadsheet against the monthly invoices, monthly electricity balance sheets confirmed by grid company and meter reading records, the internal audit record and daily log. <i>Conclusion:</i> The values are correct.	OK	OK
B. $EG_{import,y}$		Quantity of electricity imported from the grid by the project plant in year y (MWh/yr)		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
a) Measurement / Determination method (VVS, §§ 389-393) <i>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level but also describe the applied data aggregation trails (from ODL to data aggregation level zero).</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>	/I1/ /PDD/ /ACM000 2/ /CAL/ /XLS/ /MRR/ /EBS/ /PPA/ /PWD/ /MDCR/	<i>Description:</i> Guanbaodu Project <i>EG_{import,y} is measured continuously by gateway meter M2, gateway meter M2 is installed at the Gantang Transformer Station and owned by local power company with accuracy of 0.5s and recorded monthly at 24:00h on 25th of each month. The electricity during 26/12/2015 to 31/12/2015 has been deducted and the electricity during 26/12/2017 to 31/12/2017 has been added for December 2017, the relevant data is confirmed by checking PO's reading records^{/MRR/} which have been confirmed by the grid company^{/EBS/}.</i> <i>The gateway meter monitors the quantity of electricity imported from the grid by the project plant. The meter readings are recorded by the grid company daily and aggregated monthly. Meanwhile, the automatic monitoring system collects the data from the meters every day and delivers them to the grid company. The meter readings are recorded by the grid company, based on that, related monthly balance sheets and invoices have been issued.</i> <i>M1 installed at the power station is the backup meter. When the Gateway Meter is in malfunction, the readings of M1 will be used for reference. The accuracy of M1 is 0.5.</i> <i>Neither failure of Gateway Meter M2 and backup meter M1 were detected during the monitoring period.</i> <i>During this monitoring period, meter direction of Gateway Meter M2 was changed on 16/05/2017 according to the requirements by Power Grid Company^{/MDCR/}. It means the meter readings of exported and imported electricity has also been exchanged. Therefore, there were two reading records in May 2017^{/EBS/}, but the accuracy and other parameters of M2 remained the same, and no failure of the meter occurred during this monitoring period. So there was no influence on the ER calculation due to the</i>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		exchange. Furthermore the monitoring system is still in line with the methodology and the registered PDD. The DOE has checked all related calibration certificates and confirms that the calibration of each meter is valid for the entire 6th monitoring period^{/CAL/}. The data aggregation procedure applied by the PP is shown as follow: 1. $EG_{import, y}$ is measured continuously by Gateway Meter M2, the operators read the value from the Gateway Meter M2 at 24:00 per day. Based on the difference between the two meter values for each meter on 0:00 (24:00 of the day before) and 24:00 for the day the power imported for that day is determined. Accordingly the operator issues the daily reports. The daily reports record the quantities of gross power imported per day (DAL-2=ODL). 2. Based on the daily reports for a month, the PP issues a corresponding monthly report. The sum of the quantities of gross power imported per day is the final result as shown in the monthly report (DAL-1). 3. Based on the monthly reports, the final monthly value was reported in the monitoring report (DAL0). Liangjiangkou Project $EG_{import, y}$ is measured continuously by gateway meter M1, gateway meter M1 is installed at the Shuangjiang Transformer Station and owned by local power company with accuracy of 0.5s and recorded monthly at 24:00h on 25th of each month. The electricity during 26/12/2015 to 31/12/2015 has been deducted and the electricity during 26/12/2017 to 31/12/2017 has been added for December 2017, the relevant data is confirmed by checking PO's reading records^{/MRR/} which have been confirmed by the grid company^{/EBS/}. The gateway meter monitors the electricity delivered to the grid through the project. The meter readings are recorded by the grid company daily and aggregated monthly. Meanwhile, the automatic monitoring system collects the data from the meters		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		every day and delivers them to the grid company. The meter readings are recorded by the grid company jointly with PP, based on that, related monthly balance sheets and invoices have been issued. Neither failure nor exchange of Gateway Meter M1 was detected during the monitoring period. The data aggregation procedure applied by the PP is shown as follow: 1. $EG_{Import, y}$ is measured continuously by Gateway Meter M1, the operators read the value from the Gateway Meter M1 at 24:00 per day. Based on the difference between the two meter values for each meter on 0:00 (24:00 of the day before) and 24:00 for the day the power imported for that day is determined. Accordingly the operator issues the daily reports. The daily reports record the quantities of gross power imported per day (DAL-2=ODL). 2. Based on the daily reports for a month, the PP issues a corresponding monthly report. The sum of the quantities of gross power imported per day is the final result as shown in the monthly report (DAL-1). 3. Based on the monthly reports, the final monthly value was reported in the monitoring report (DAL0). <i>Verifier's action:</i> This was verified by on-site interview, by observations and by cross checking with calibration records, registered PDD and applied methodology against the ER calculation spreadsheet. Furthermore, the following actions have been taken by the verification team to check the correctness of the data aggregation. The reported value in the MR has been recalculated by the verification team based on the values from the monthly reports. Based on monthly reports and the underlying original data, the verification team calculated the data aggregation completely independent from the calculation provided by the PP. 100% of the		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		daily and monthly reports have been verified. The values have been crosschecked with electricity purchases invoices. <i>Conclusion:</i> The measurement is documented as per registered PDD and applied methodology ACM0002 version 16.0.		
b) Accuracy and QA/QC Procedure (VVS, §§ 394-400) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i>	/CAL/ /CMA/ /EBS/ /MRR/ /DLT/ /JJG/ /TCR/ /QAQC/ /O&M/	<i>Description:</i> The calibration of all the meters were performed annually by a qualified 3rd party entity which according to national industry standard /JJG/&/DLT/ and records maintained /CAL/. QA/QC procedure for meter calibration maintenance and recording; procedure for monitoring staff training and competence were established and implemented. The data flow and protection process was observed during the on-site verification. For Guanbaodu, in case the Gateway Meter is out of order the backup meter readings will be applied. For Liangjiangkou, in case the Gateway Meter is out of order the ERs will not be claimed by PP. The calibration is valid for the entire monitoring period. The monitored data will be kept for two years after the last issuance of ERs. <i>Verifier's action:</i> The above mentioned was verified by cross checking the monthly power invoices, the meter readings and calibration records against the MR, internal audit records and ER sheet against the MR. Further, an on-site interview has been conducted and the procedures for meter calibration maintenance and recording as well as for monitoring staff training and competence have been cross checked. <i>Conclusion:</i>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		The accuracy of equipment used for monitoring is checked as controlled and calibrated in accordance with the monitoring plan.		
c) Correctness (VVS, §§ 389-393) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i> <i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i>	/MR/ /EBS/ /MRR/ /QAQC/ /LOG/ /XLS/ /TCR/	☒ Correct ☐ Not correct (initial assessment) <i>Description:</i> The electricity of $EG_{import,y}$ during this monitoring period is reported in the MR based on the meters readings, electricity balance sheets and purchases invoices. The total value is the sum of both plants which used for ER calculation. <i>Verifier's action:</i> By means of checking the ER-spreadsheet against the monthly invoices, monthly electricity balance sheets confirmed by grid company and meter reading records, the internal audit record and daily log. <i>Conclusion:</i> The values are correct.	OK	OK
C. $EG_{PJ,y}$		Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)		
a) Measurement / Determination method (VVS, §§ 389-393) <i>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level but also describe the applied data aggregation trails (from ODL to data aggregation level zero).</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.</i> <i>Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>	/I1/ /PDD/ /ACM000 2/ /CAL/ /XLS/ /MRR/ /EBS/ /PPA/ /PWD/ /MDCR/	<i>Description:</i> $EG_{PJ,y}$ is calculated by $EG_{export,y} - EG_{import,y}$. <i>Verifier's action:</i> The calculated value in the MR has been recalculated by the verification team based on the values from the monthly reports. The values have been crosscheck with electricity invoices. <i>Conclusion:</i> The determination method is documented as per registered PDD and applied methodology ACM0002 version 16.0.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
b) Accuracy and QA/QC Procedure (VVS, §§ 394-400) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i>	/CAL/ /CMA/ /EBS/ /MRR/ /DLT/ /JJG/ /TCR/ /QAQC/ /O&M/	<i>Description:</i> QA/QC procedure for calculation; procedure for monitoring staff training and competence were established and implemented. The data flow and protection process was observed during the on-site verification. <i>Verifier's action:</i> The above mentioned was verified by cross checking the monthly power invoices, the meter readings and calibration records against the MR, internal audit records and ER sheet against the MR. <i>Conclusion:</i> The accuracy of is checked as controlled in accordance with the monitoring plan.	OK	OK
c) Correctness (VVS, §§ 389-393) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i> <i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i>	/MR/ /EBS/ /MRR/ /QAQC/ /LOG/ /XLS/ /TCR/	☒ Correct ☐ Not correct (initial assessment) <i>Description:</i> The electricity of $EG_{PJ,y}$ during this monitoring period is reported in the MR based on the meters readings, electricity balance sheets and monthly invoices. <i>Verifier's action:</i> By means of checking the ER-spreadsheet against the monthly invoices, monthly electricity balance sheets confirmed by grid company and meter reading records, the internal audit record and daily log. <i>Conclusion:</i> The values are correct.	OK	OK
D. Installed capacity		Installed capacity of power plants		
a) Measurement / Determination method (VVS, §§ 389-393)	/I1/ /PHT/	<i>Description:</i> Guanbaodu Project	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level but also describe the applied data aggregation trails (from ODL to data aggregation level zero). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/PDD/ /MR/ /ACM000 2/ /TP/ /LOG/ /PPA/	4 sets of turbine generators with rated unit capacity of 1 MW are installed which is in line with registered PDD. The nameplates and the central control system of turbine generators are read every year from 2016 to 2017. Liangjiangkou Project 3 sets of turbine generators with rated unit capacity of 0.63 MW are installed which is in line with registered PDD. The nameplates and the central control system of turbine generators are read every year from 2016 to 2017. Verifier's action: It was verified by means of on-site interview and observation and cross checking with equipment purchasing contracts. Conclusion: The capacity is as per registered PDD and applied methodology ACM0002.		
b) Accuracy and QA/QC Procedure (VVS, §§ 394-400) In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs. Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.	/I1/ /PHT/ /PDD/ /MR/ /ACM000 2/ /TP/ /LOG/ /PPA/	Description: The accuracy of the value can be verified from nameplates of turbine generators and the technical information/parameters in equipment purchasing contracts. The value is verified once a year. Verifier's action: This was verified by means of on-site interview and observation and cross checking equipment purchasing contracts and PDD. Conclusion: QA/QC procedures are met. No inaccuracies occurred.	OK	OK
c) Correctness (VVS, §§ 389-393)	/I1/ /PHT/	☒ Correct ☐ Not correct (initial assessment) Description:	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i> <i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i>	/PDD/ /MR/ /ACM000 2/ /TP/ /LOG/ /PPA/	The value has been checked with the capacity indicated on the nameplates (4 x 1 MW+ 3 x 0.63 MW) of turbine generators and the technical information/parameters of the key equipment. <i>Verifier's action:</i> This was verified by means of on-site interview and observation and cross checking the equipment purchasing contracts and PDD. <i>Conclusion:</i> The installed capacity 5.89 MW given in the monitoring report is correct. The project is installed as per registered PDD.		
E. Area of the reservoir		Area of the reservoir of the plants		
a) Measurement / Determination method (VVS, §§ 389-393) <i>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level but also describe the applied data aggregation trails (from ODL to data aggregation level zero).</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>	/I1/ /PSAR/ /PDD/ /MR/ /ACM000 2/	<i>Description:</i> Guanbaodu Project Area of the reservoir is measured yearly by a qualified 3rd party entity "Jingzhou Miao and Dong Autonomous County Hydro Management Station". The area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full was determined as 327,000 m² in 2016 and 328,000 m² in 2017, the power density is therefore calculated as 12.23 W/m² for 2016 and 12.20 W/m² for 2017 which is higher than 10 W/m². Liangjiangkou Project Area of the reservoir is measured yearly by a qualified 3rd party entity "Tongdao Dong Autonomous County Water Conservancy Bureau". The area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full was determined as 177,700 m² in 2016 and 177,500 m² in 2017, the power density is therefore calculated as 10.64 W/m² in 2016 and 10.65 W/m² in 2017 which is higher than 10 W/m².	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<i>Verifier's action:</i> It was verified by on-site interview and cross checking with Report of the reservoir area of Guanbaodu and Liangjiangkou Hydropower project and MR, registered PDD and applied methodology. <i>Conclusion:</i> The measurement is documented as per registered PDD and applied methodology ACM0002 version 16.0.		
b) Accuracy and QA/QC Procedure (VVS, §§ 394-400) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i>	/PSAR/ /PDD/ /MR/ /ACM000 2/	<i>Description:</i> The value is measured yearly by a qualified 3rd party entity. No significant inaccuracies have been identified for this parameter. The data will be kept for two years after the last issuance of CERs. <i>Verifier's action:</i> It was verified by cross checking the Report of the reservoir area against the PDD and MR. <i>Conclusion:</i> The accuracy for monitoring is checked as controlled by the qualified 3rd party entity.	OK	OK
c) Correctness (VVS, §§ 389-393) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i> <i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i>	/PSAR/ /PDD/ /MR/ /ACM000 2/	☒ Correct ☐ Not correct (initial assessment) <i>Description:</i> The value given in the Report of the reservoir area is derived from the qualified 3rd party entity which is qualified for required technical area. <i>Verifier's action:</i> It was verified by cross checking the Report of the reservoir area against the PDD and MR. <i>Conclusion:</i>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		The value given in MR is correct and justified.		

Appendix 6. Calibration dates and validity of installed monitoring equipment

Guanbaodu Project

Monitoring equipment	Related monitoring parameter as per applicable registered monitoring plan	Serial number	Type	Accuracy or accuracy class	Previous calibration (last calibration before start of this monitoring period)	Calibration date(s) during this monitoring period	Validity of calibration (s)	Delay in calibration: yes/no	Period of delayed calibration
M2	EG _{export,y} EG _{import,y}	12010000004 9	DSZ331	0.5s	20/05/2015	18/05/2016 16/05/2017	20/05/2015~ 15/05/2018	☒ No ☐ Yes	From: To:
M1	EG _{export,y} EG _{import,y}	0704575	DSSD25	0.5	20/05/2015	18/05/2016 16/05/2017	20/05/2015~ 15/05/2018	☒ No ☐ Yes	From: To:

Liangjiangkou Project

Monitoring equipment	Related monitoring parameter as per applicable registered monitoring plan	Serial number	Type	Accuracy or accuracy class	Previous calibration (last calibration before start of this monitoring period)	Calibration date(s) during this monitoring period	Validity of calibration (s)	Delay in calibration: yes/no	Period of delayed calibration
M1	EG _{export,y} EG _{import,y}	43480010003 697381	DSZ331	0.5s	12/05/2015	11/05/2016 11/05/2017	12/05/2015~ 11/05/2018	☒ No ☐ Yes	From: To: