Validation report for
GS4GG project activities

(Gold Standard for the Global Goals)

BASIC INFORMATION	
Title of the project activity	Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project
GS Reference Number	GS835
Version number of the validation report	2.0
Completion date of the validation report	23/02/2023
Version number of the PDD to which this report applies	12
Project developer	Climate Bridge (Shanghai) Ltd.
Project Representative	Climate Bridge (Shanghai) Ltd.
Project Participants and any communities involved	Project owner: Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd (project owner of Guanbaodu project) Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (project owner of Liangjiangkou project)
Host Party	P. R. China
Applied methodologies and version number	ACM0002 “Grid-connected electricity generation from renewable sources ” (Version 21.0)
Mandatory sectoral scopes linked to the applied methodologies	1
Activity Requirements applied	☐ Community Services Activities ☒ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Scale of the project activity	☐ Micro scale ☒ Small Scale ☐ Large Scale
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
Project Cycle	☐ Regular ☒ Retroactive

SDG Impacts	Gender Equality (SDG 5)- 5.1.1 Legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex	3 women employees serving in managerial/ leadership /ownership role
	Affordable and Clean Energy (SDG 7)- 7.2.1 Renewable energy share in the total final energy consumption	21,612 MWh/year renewable electricity produced
	Decent Work and Economic Growth (SDG 8)- 8.3.1 Proportion of informal employment in non-agriculture employment, by sex	23 of jobs
	Climate Action (SDG 13)- 13.3.2 - Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions.	Amount of GHGs emissions avoided or sequestered 12,317 t GSVERs/year
Name of the VVB	VVB Name: Shenzhen CTI International Certification Co., Ltd (CTI)	
Name, position and signature of the approver of the validation report	Wang Guolian Wang Guolian Technical Reviewer/Approver	

SECTION A. Executive summary

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The bundled 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 bundled 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 Hydropower Station* (hereafter referred to as "Guanbaodu") is located on Qushui 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 328,000 m^2, thus the power density of Guanbaodu is 12.20 W/m^2. 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 annual average of 8,841 tCO_2e per year during the third 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 *Guanbaodu Hydropower Station* (hereafter referred to as "Liangjiangkou")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 176,800 m^2, thus the power density of Liangjiangkou is 10.69 W/m^2. 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 annual average of 3,476 tCO_2e per year during the third 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 bundled project activity uses renewable hydro energy to generate electricity displacing fossil fuel dominated electricity generation in CCPG and thus resulting in greenhouse gases emission reductions.

The estimated emission reduction from the bundled project is 12,317 tCO_2e per year during the third renewable 7-year crediting period.

Scope of Validation

The scope of the services provided by the Shenzhen CTI International Certification Co., Ltd for the project is to perform Design Certification Renewal for the project. The scope of Design Certification Renewal is to assess the claims and assumptions made in the project design document (PDD) for the 3rd certification cycle against the GS4GG criteria, CDM applied methodology and other relevant rules and requirements established for GS4GG project activities.
The bundled project applied under Gold Standard for the Global Goals and the Gold Standard Reference No. is 835.

The bundled project completed the registration in GS on 31/12/2010 and the start date of the first crediting period of the bundled project is defined as 01/01/2009. The bundled project has completed the transition to GS4GG on 29/10/2019/4/ with a renewable crediting period of 3*7 years. The 2nd crediting period is from 01/01/2016 to 31/12/2022/5/. This design renew validation is conducted for the project to be renewed in the 3rd certification cycle which is continuous after the 2nd crediting period. The estimated annual emission reductions in the 3rd crediting period from 01/01/2023 to 31/12/2029 are 12,317 tCO_2e, the total estimated emission reductions in the third crediting period are 86,219 tCO_2e.

According to section (e) Design Certification Renewal 5.1.45 of Gold Standard for the Global Goals Principles and Requirements/25/, "to maintain Gold Standard certified status, a Project must undergo Design Certification Renewal. This process shall begin (defined by the submission of a Renewal opinion by a VVB for Design Review to Gold Standard) no later than the last date of current certification cycle."

The 2nd certification cycle ended on 31/12/2022, the completion of re-validation is finished before 31/12/2022 which is not beyond the last date of current 2nd certification cycle, hence the 3rd certification cycle can be continuous after the 2nd crediting period.

The objective of this design certification renewal is the review by a VVB whether the project is compliant with the applicable sections of:

- the Gold Standard for the Global Goals Principles and Requirements/25/,
- the Gold Standard for the Global Goals Safeguarding Principles & Requirements/26/,
- the Gold Standard for the Global Goals Renewable Energy Activity Requirements/27/,
- GS4GG GHG Emissions Reduction & Sequestration Product Requirements/29/,
- the Gold Standard for the Global Goals Stakeholder Consultation and Engagement Requirements/28/,
- the applied CDM Methodology ACM0002 "ACM0002 Grid-connected electricity generation from renewable sources " (Version 21.0)/20/,
- Any other decision taken by the Technical Advisory Committee of GS (GS-TAC);
- other relevant rules, including the host country legislation

As per the requirements of the Gold Standard for the Global Goals Principles and Requirements/25/, the validation is based on

- the GS4GG PDD/1/,
- the Emission Reduction Calculation Spreadsheet/2/,
- the SDG Impact Tool table of this project/3/,
- further supporting documents made available to the validator as well as
- information collected through performing on-site interviews.

Furthermore, publicly available information, such as the host country legislation, was considered as far as available and required.

Validation Process and Methodology

The validation has been performed as described in the Gold Standard for the Global Goals Principles and Requirements/25/ as below process,

a) Desk review of GS PDD (version 01 dated 29/07/2022)/1/ and the relevant documents submitted by the project developer in context of GS4GG criteria
b) On-site assessment (03/08/2022~04/08/2022) conducting site visit, interview or interactions with the representative of the project owner, operation staffs, local officers and residents
c) Issuance of draft validation report, reporting audit findings with respect to clarifications (CLs) and non-conformities(CARs)
d) Resolution of the raised CARs and CLs, close all findings
e) Issuance of the final validation report
f) Independent technical review of the final validation report and final/revised documentation (e.g., PDD, corresponding ER sheet and evidences)
g) Reporting and closure of TR comments/findings and final approval for the decision made
h) Issuance of final validation report to contracted PD (or authorized representatives) and submission of request for design certification, as appropriate.

Conclusion

CTI has performed the design certification renewal of the GS PA "Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project" having GS Ref. Number GS835. The actual project design is consistent with the PDD which will create estimated emission reduction from the project is 86,219 tCO_2e during the 3rd renewable 7-year crediting period from 01/01/2023 to 31/12/2029.

In CTI's opinion, PDD, supporting documentation and subsequent follow up actions have provided with sufficient evidence to determine the fulfilment of stated GS4GG criteria. CTI confirmed that each SDG Impacts for the 3rd certification cycle were estimated correctly on the basis of the approved ACM0002 "Grid-connected electricity generation from renewable sources " (Version 21.0) and the Global Goals Principles and

Requirements. Therefore, this is being submitted for request for design certification renewal, as per GS procedures as applicable.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader & Validator	IR	Liu	Jia	CTI	√	√	√	√

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer/Approver	IR	Wang	Guolian	CTI

SECTION C. Means of validation

C.1. Desk review

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Desk review of all documents provided by PD and publicly available documents relevant for the desifn certification renew including Key Project Information & project Design Document (PDD)/1/, emission reduction calculation spreadsheet/2/, SDG Impact Tool/3/, applied methodology and applicable tools in particular attention to the project design, re-deternimation of baseline and monitoring plan and other relevant supporting documents was conducted by CTI.

The main documents are listed below:

(i) the GS4GG PDD Version 1 dated 29/07/2022/1/,
(ii) the emission reduction calculation spreadsheet related to this monitoring period Version 01 dated 29/07/2022/2/,
(iii) SDG Impact Tool of the project/3/

Other supporting documents, such as publicly available information and background information were also reviewed.

The list of documents reviewed during the validation is provided under Appendix 3 of this report.

C.2. On-site inspection

Duration of on-site inspection: 03/08/2022~04/08/2022				
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	03/08/2022	Jia Liu
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	03/08/2022	Jia Liu
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	03/08/2022	Jia Liu
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	04/08/2022	Jia Liu
5.	Documents check of Liangjiangkou Plant	Liangjiangkou plant in Liangjiangkou Village, Shuangjiang Town, Tongdao Dong Autonomous County, Huaihua City, Hunan Province, P.R. China	04/08/2022	Jia Liu
6.	Finding Summary	Liangjiangkou plant in Liangjiangkou Village, Shuangjiang Town, Tongdao Dong Autonomous County, Huaihua City, Hunan Province, P.R. China	04/08/2022	Jia Liu
7.	Close Meeting	Liangjiangkou plant in Liangjiangkou Village, Shuangjiang Town, Tongdao Dong Autonomous County, Huaihua City, Hunan Province, P.R. China	04/08/2022	Jia Liu

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Li	Yonghua	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. /CEO	03/08/2022	- General aspects of the project - Changes since validation / previous verifications - Calibration procedures - Power generation situation - Quality management system - 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	Jia Liu
2.	Li	Jing	Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd. / Guanbaodu Plant Chief	03/08/2022		Jia Liu
3.	Chu	Yanming	Jingzhou Miao & Dong Autonomous County Environment Protection Bureau/ Inspection team leader	03/08/2022	- Water quality and quantity - Solid waste - Biodiversity - Livelihood of the poor - Management Regulation of Environment and Health	Jia Liu
4.	Zheng	Lianxi	local resident	03/08/2022	- Water quality and quantity - Solid waste - Biodiversity - Livelihood of the poor	Jia Liu
5.	Zhu	Li				
6.	Xu	Xuefen				
7.	Wang	Hong				
8.	Zhang	Yun				
9.	Yang	Zhiqin	Tongdao Dong Autonomous County Liangjiangkou Hydropower Station/ Liangjiangkou Plant Chief	04/08/2022	- General aspects of the project - Changes since validation / previous verifications - Calibration procedures - Power generation situation - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel	Jia Liu
10.	Wu	Yourong	Tongdao Dong Autonomous County Liangjiangkou	04/08/2022		Jia Liu

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
			Hydropower Station/ General Manager		- 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	
11.	Wu	Yanchao	Jingzhou Miao & Dong Autonomous County Environment Protection Bureau/Vice Bureau Chief	04/08/2022	- Water quality and quantity - Solid waste - Biodiversity - Livelihood of the poor - Management Regulation of Environment and Health	Jia Liu
12.	Shu	Xiaofeng	Local resident	04/08/2022	- Water quality and quantity - Solid waste - Biodiversity - Livelihood of the poor	Jia Liu
13.	Ye	Shuai				
14.	Liu	Hongguang				
15.	Xing	Kaifu				
16.	Peng	Yumei	Climate Bridge Ltd./Project Manager	03/08/2022-04/08/2022	- Monitoring plan - Monitoring training - Emission reduction calculation	Jia Liu

C.4. Sampling approach

N/A

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	-	-	-
Key project information assessment	-	-	-
Description of project activity	CL 01 CL 02	-	-
Application and selection of methodology			
- Selected approved methodology(ies) and methodological tools	-	-	-
- Application of methodology(ies) and tools	CL 03	CAR 01	-
- Project boundary, sources and GHGs	-	-	-
- Re-definition of Baseline scenario	-	CAR 02	-
- Demonstration of additionality	CL 04	-	-
- Estimation SDG impacts	-	-	-
- Monitoring plan	-	-	-
Start date, crediting period type and duration	-	-	-

Safeguarding principles and gender sensitive assessment	-	-	-
Local stakeholder consultation (LSC) assessment	-	-	-
Discussion on continuous input / grievance mechanism	-	-	-
Total	**4**	**2**	**0**

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	A draft PDD was submitted to the validation team by the PD. By means of the GS website it has been checked whether the latest applicable PDD template "Key Project Information & Project Design Document (PDD)" has been used. Further it has been checked whether the latest instructions for filling out the PDD template (TGuide-PreReview_V1.2-Project-Design-Document) have been followed. Every section has been checked against the respective guidance.
Findings	N/A
Conclusion	The PD used the latest version of the GS PDD form/23/ for the PDD completion than intial version. It is confirmed that the latest instructions(TGuide-PreReview_V1.2-Project-Design-Document)/24/ for filling out the PDD have been followed.

D.2. Key Project Information assessment

Means of validation	Via on-site investigation, CTI confirmed that the project is a grid connected hydro power project with a total installed capacity of 5.89MW (4MW+1.89MW)/18/. The bundled project includes 2 small-scale hydro power generation projects/18/. The Guanbaodu project is located on Qushui River. The installed capacity is 4 MW (1MW×4), and the annual net electricity generation is estimated to be 15,513 MWh. 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 generated electricity is delivered to the Xianxi Substation via a 35kv power transmission line, and finally connected to CCPG. The implementation and technology of the bundled project have been verified as actual by on-site inspection and checking the design in the PDD/1/. The activity requirements applied is Renewable Energy Activities. The bundled project completed the registration in GS on 31/12/2010 and the start date of the first crediting period of the bundled project is defined as 01/01/2009. The bundled project has completed the transition to GS4GG on 29/10/2019/4/ with a renewable crediting period of 3*7 years. The installed capacity of the bundled project is 5.89MW, which is lower than 15MW. As per section 5.1.2 and 5.1.4 of GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1)/29/, the project is a small-scale GS VER project. The project applied CDM approved methodology ACM0002 "Grid-connected electricity generation from renewable sources " (Version 21.0)/20/. Product Requirements applied is GHG Emissions Reduction & Sequestration.
Findings	N/A
Conclusion	The validation team confirms that the process undertaken to describe the key information of the project is described above. The information of the project is justified from the terms mentioned in Key project information form in PDD which has been assessed by the validation team, and CTI confirms that the GS project activity qualifies the eligibility criteria for GS4GG project activities.

D.3. Description of project activity

Means of validation	A draft PDD was submitted to the validation team by the project developers prior to the start of the validation activities. Section A has been checked against the GS4GG Principles& Requirements/25/ as below, ***i. Purpose and general description of project***

Via on-site investigation, CTI confirmed that the project is a grid connected hydro power project with a total installed capacity of 5.89MW (4MW+1.89MW)/18/. The bundled project includes 2 small-scale hydro power generation projects/18/.

The Guanbaodu project is located on Qushui 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 328,000 m^2, thus the power density of Guanbaodu is 12.20 W/m^2. 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 8,841 tCO_2e per year during the third 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 176,800 m^2, thus the power density of Liangjiangkou is 10.69 W/m^2. 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 3,476 tCO_2e per year during the third 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 implementation and technology of the bundled project have been verified as actual by on-site inspection and checking the design in the PDD/1/ and comparing with the previous validation report/5/ and verification reports/6/.

The construction Guanbaodu commenced in August 2005, and its operation started in January 2008; and the construction of Liangjiangkou commenced in August 2006, and its operation started in January 2008, which has been confirmed in the registered Validation Report/5/ and the daily operational log/15/ against the and previous verification report/6/.

The bundled project was registered as a Gold Standard project on 31/12/2010 and the start date of the first crediting period of the bundled project is defined as 01/01/2009. The bundled project has completed the transition to GS4GG on 29/10/2019 with a renewable crediting period of 3*7 years. The second crediting period is from 01/01/2016 to 31/12/2022.

The estimated emission reduction from the project is 12,317 tCO_2e/2/ per year during the 3rd renewable 7-year crediting period from 01/01/2023 to 31/12/2029.

ii. Eligibility of the project under GS

The project activity meets the eligibility criteria of the section 2 and 3 of GS4GG Renewable Energy Activity Requirements (Version 1.4)/27/ as below demonstration,

Eligibility Requirements as per GS4GG Renewable Energy Activity Requirements	Assessment for this project
Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) Section 2.1.1 All Renewable Energy Projects for which Gold Standard certification is being sought shall fulfil the requirements as set out in this document and those referenced or associated documents	Via on-site inspection and check the PDD/1/, CTI confirmed that the project includes construction and operation of a bundled hydro power plant to generate renewable electricity to supply the national gird. Hence, it belongs to a renewable energy project. See the following assessment for specific applicability.

		Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) Section 2.1.2 In order to be eligible for Gold standard certification, all Renewable Energy Projects, shall meet the following Eligibility Criteria: a. Projects shall generate and deliver energy services (e.g., mechanical work/electricity/heat) from non-fossil fuel and renewable energy sources. b. Projects shall comprise of renewable energy generation units, such as solar photovoltaic, tidal/wave, wind, hydro, geothermal, waste to energy and renewable biomass, that are: • Supplying energy to a national or a regional grid; OR • Supplying energy to an identified consumer facility via national/regional grid through a contractual agreement such as wheeling. • Any Project supplying electricity to a mini-grid shall refer to Community Services Activity Requirements. • Projects generating on-site energy for captive consumption at an industrial facility shall refer to the requirements in this document.	Via on-site inspection and check the PDD/1/, CTI confirmed that the project includes construction and operation of a bundled hydro power plant to generate renewable electricity to supply the national gird CCPG. And the project does not belong to the Projects which generate on-site energy for captive consumption at an industrial facility. Hence, the project satisfied Eligibility Criteria (a) and the first Criteria of (b).
		Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) Section 2.1.3 New Gold Standard Verified Emission Reductions (GS VER) or Gold Standard labels for Certified Emission Reductions (GS CER), Renewable Energy projects connected to national or a regional electricity grid must be located in either a; a. Least Developed Country (LDC), Small Island Developing State (SIDS) or a Land Locked Developing Country (LLDC) or b. Low Income and Low Middle-income country where the penetration level of the proposed Renewable Energy Technology type is less than 5% of the total grid installed capacity, at the time of the first submission to preliminary review Renewable Energy projects connected to national or a regional electricity grid are ineligible for GS VERs/CERs, if located in: - an Upper Middle-Income Country or High-Income Country or - SIDS and LLDC, defined as a High-Income Country	N/A This is the design renew of an old GS VER project.
		Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) Section 2.1.4 Grid Connected off-shore wind projects and waste to energy projects that involve utilization of landfill gas/biogas	Via on-site inspection and check the PDD/1/, CTI confirmed that the project includes construction and operation of a bundled hydro power plant to generate renewable electricity to supply the national gird CCPG/13/ which is not an off-shore

	to electricity generation with or without thermal energy production are exempted from eligibility requirement outlined in paragraph 2.1.3 |above.	wind projects and waste to energy projects that involve utilization of landfill gas/biogas to electricity generation with or without thermal energy production project. So, this criterion is not applicable.
	Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) Section 2.1.5 The eligibility requirement outlined in paragraph 2.1.3 |above is effective from 24 Jan 2020. This requirement is applicable in case of projects and PoAs as follows a-e in 2.1.5.	N/A This is the design renew of an old GS VER project.
	Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) Section 2.1.6 Where exceptional circumstances exist, a project may seek an exception to paragraph 2.1.3 | above. This include cases when a project serves impoverished beneficiaries at preferential electricity rates or the project is located in a conflict zone, or penetration of proposed project technology type is not a common practice in the relevant region of the host country. Exceptional circumstances will be judged on a case-by-case basis and are entirely at the discretion of Gold Standard. If exceptional circumstance exists	N/A
	Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) Section 2.1.7 An exception to paragraph 2.1.3 is pre-approved for distributed installations of renewable technologies, as outlined below; a. Grid connected Renewable Energy projects/ VPAs that involve distributed installation of Renewable technology, where individual unit size is up to a maximum 500 kW of installed capacity, are eligible for the issuance of GSVERs or GS-CERs. b. Projects/ VPAs must be submitted to Gold Standard for preliminary review on or before 31/12/2023. c. Projects/ VPAs must still demonstrate additionality at the time of design certification or inclusion, as applicable.	N/A This is the design renew of an old GS VER bundled grid connected hydro power project.
	Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) Section 2.1.8 Additional eligibility criteria for specific Renewable Energy project technologies like Hydropower, projects using biomass resources, biogas, waste heat/gas recovery, fossil co-generation,	N/A This is the design renew of an old GS VER bundled grid connected hydro power project.

	waste incineration and gas, and waste handling and disposal etc., are prescribed in Annex A.	
	Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) Section 2.1.9 Projects seeking to issue of both Renewable Energy Labels and GS VERs shall meet the applicable requirements of: a. Applied Impact Quantification Methodologies for Emissions Reductions b. GHG Emissions Reductions & Sequestration Product Requirements c. Renewable Energy Label Product Requirements	The bundled project only seeks to issue of GS VERs. So, this criterion is not applicable.
	Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) **Types of Project** Section 3.1 Eligible projects shall include physical action/implementation on the ground. Pre-identified eligible project types are mentioned in the paragraph 2| above.	Via on-site inspection and checking the PDD/1/, CTI confirmed that the project includes construction and operation of a bundled hydro power plant to generate renewable electricity to supply the national gird CCPG which is confirmed as belongs to Renewable Energy Projects. The project satisfied the eligibility requirement which has been assessed as above assessment for section 2 of the GS4GG Renewable Energy Activity Requirements (Version 1.4).
	Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) **Location of Project** Section 3.2 Eligible projects may be located in any part of the world. Hydropower projects shall not be located in High Conservation Values (HCVs) areas. Please refer to Annex A for further information on hydropower projects.	Via on-site inspection and checking the PDD/1/, CTI confirmed that the project includes construction and operation of a bundled hydro power plant which is not located in HCVs areas which has been verified by site inspection against the validation and previous verification reports.
	Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) **Project area, boundary and scale:** Section 3.3 Project Area and Boundary shall be defined in line with the applicable Methodologies and Product Requirements. The following scale categories are applied to RE activities: a. Microscale b. For the purpose of applying GS approved methodologies for quantification of GS VERs/CERs, 'small scale' is defined as per the indicated type, as follows: i. Renewable energy Project with a maximum output capacity of 15 MW (or an appropriate equivalent) ii. End-use energy efficiency improvement	Project Area and Boundary has been assessed in the section D.4.3 of this report, which has been verified as defined in line with the applicable Methodologies and Product Requirements. Via checking the PDD/1/, validation and previous verification reports/5/,/6/ and on-site inspection, it is confirmed that the total installed capacity is 5.89MW which is verified by checking the PDD/1/, hence is lower than 15MW. Then the project is a small-scale project.

project activities that reduce energy consumption, on the supply side, with a maximum energy saving of 60 GWh per year (or an appropriate equivalent) in any year of the crediting period. In this context, for project activities that improve thermal energy efficiency, the maximum energy saving of 60 GWh(e) per year is equivalent to 180 GWh(th) per year saving. iii. Other project types not included in Renewable and End use energy project types that result in GHG emission reductions not exceeding 60,000 tCO_2eq per annum in any year of the crediting period.	
Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) **Suppressed demand** Section 3.4 Certain Impact Quantification methodologies allow projects to account for a Suppressed Demand scenario when establishing a baseline. In such cases, the application of the Suppressed Demand baseline is limited to small scale and microscale projects.	The methodology ACM0002: "Grid-connected electricity generation from renewable sources" (Version 21.0) is applied by the bundled project. The bundled project does not involve the suppressed demand scenario.
Eligibility Criteria in GS4GG Renewable Energy Activity Requirements (Version 1.4) **Stacking** Section 3.5 A single Renewable Energy project may potentially pursue any number and combination of Certified Impact Statements or Products. However, certain Product Requirements, which supersede the generic requirements stated in this document can set restrictions on co-issuance of Certified Impact statements or Products. For instance, GS VERs or GS CERs with REC labels cannot be claimed for the same MWh. Where a Suppressed Demand baseline is applied, it is not allowed to 'stack' Gold Standard Certified Impact Statements or Products as the definition of the baseline may be contradictory.	The bundled project was only registered as a Gold Standard project on 31/12/2010, it is confirmed that the PP will not apply for emission reduction credits or labels under any other schemes other than GS for the same MWh and double counting will be avoided. The total installed capacity of the bundled project is 5.89 MW which qualifies under small scale projects. Eligibility criteria with regards to the scale of the Project has applied to the bundle as a whole and not to the individual projects. The paragraph 2.1.3 is not applicable as the bundled project is not VPA belonged to POA. Hence Suppressed Demand baseline is not applicable.

The project activity meets the eligibility criteria of the GS4GG as per section 3.1.1 of GS4GG Principles & Requirements/25/ and section 2 of GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1)/29/ as below demonstration,

Requirements as per GS4GG Principles & Requirements and GS4GG GHG Emissions Reduction & Sequestration Product Requirements	Assessment for this project
- **Types of Project**	Via on-site inspection and check the PDD/1/, CTI confirmed that the project

	Eligibility Criteria in GS4GG Principles & Requirements (Version 1.2) Section 3.1.1 Eligible projects shall include physical action/implementation on the ground. Pre-identified eligible project types are identified in the Eligibility Principles and Requirements section. **Eligibility Criteria in GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1)** Section 5.1.1 The Following Project types are eligible for issuance of GSVERs or GSCERs: a) Renewable Energy Supply; b) End-Use Energy Efficiency Improvement; c) Waste Handling & Disposal; d) Land Use and Forests.	includes construction and operation of a bundled hydro power plant to generate renewable electricity to supply the national gird. Hence, it belongs to a renewable energy project, thus falls under section 5.1.1 (a) "Renewable Energy Supply" of GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1)/29/. The bundled project was registered as a Gold Standard project on 31/12/2010. Besides, as described above, the project meets the requirement of RE activities requirement, so the project type is automatically eligible for Gold Standard Certification which is in line with the section 4.1.3 of GS4GG Principles & Requirements (Version 1.2)/25/.
	- **Location of Project** **Eligibility Criteria in GS4GG Principles & Requirements (Version 1.2)** Section 3.1.1 Projects may be located in any part of the world. **Eligibility Criteria in GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1)** Section 3.1.1 Gold Standard VER Projects may be located in any host country or state. However, where host countries or states have mandatory operational schemes to reduce GHG emissions in any form (e.g. cap & trade, carbon tax etc.), Projects shall only be eligible if the Project Developer has either: (a) provided Gold Standard with satisfactory justification that no double counting of emission reductions occur or (b) has committed to retiring eligible units equal to the quantity of Gold Standard VERs. Refer to Annex A of this document.	Via checking the PDD/1/ and on-site inspection, CTI confirmed that the bundled hydro project is located in Hunan Province, China which is an eligible country. Furthermore, based on validation team's local expertise, China has a cap & trade scheme only cover the high-emission industries, such as power generation sector that emitted at least 26,000 tons of CO_2e/year which has been verified in the public website/36/, and CTI confirmed that the project activity is not included the mandatory emission control scheme and there is no emission cap enforced for the project owner by checking the enforced company list in public information/37/. The bundled project was only registered as a Gold Standard project on 31/12/2010, it is confirmed that the PP will not apply for emission reduction credits or labels under any other schemes other than GS and the emission reductions will not be double counted. In conclusion, CTI verified that Project Developer has provided Gold Standard with satisfactory justification that no double counting of emission reductions occur. Hence, the project satisfied this eligibility requirement.
	- Project Area, Project Boundary and Scale: **Eligibility Criteria in GS4GG Principles & Requirements (Version 1.2)**	Via checking the PDD/1/ and on-site inspection, CTI confirmed that the bundled hydro project is located in Hunan Province, China. Project Area and Boundary has been assessed in the section D.4.3 of this report, which has been verified as defined

		Section 3.1.1 The Project Area and Project Boundary shall be defined. Projects may be developed at any scale although certain rules, requirements and limitations may apply under specific Activity Requirements, Impact Quantification Methodologies and Products Requirements. In order to avoid double counting the Project shall not be included in any other voluntary or compliance standards programme unless approved by Gold Standard (for example through dual certification). Also, if the Project Area overlaps with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature, the project shall demonstrate that there is no double counting of impacts at design and performance certification (for example use of similar technology or practices through which the potential arises for double counting or misestimation of impacts amongst projects). **Eligibility Criteria in GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1)** Section 3.3.1 Section 9.1.1 Section 9.1.2	in line with the applicable Methodologies and Product Requirements. Furthermore, based on validation team's local expertise, China has a cap & trade scheme only cover the high-emission industries, such as power generation sector that emitted at least 26,000 tons of CO_2e/year which has been verified in the public website/36/, and CTI confirmed that the project activity is not included the mandatory emission control scheme and there is no emission cap enforced for the project owner by checking the enforced company list in public information/37/. Besides, via checking the other carbon schemes/32/,/33/,/34/,/35/, CTI confirmed that project does not apply for emission reduction credits or labels under any other schemes other than GS and the emission reductions will not be double counted. In conclusion, CTI verified that Project Developer has provided Gold Standard with satisfactory justification that no double counting of emission reductions occur. Via checking the PDD/1/ and on-site inspection, it is confirmed that the total installed capacity is 5.89MW which is verified by checking the PDD/1/ and validation report/5/, previous verification reports/6/, hence is lower than 15MW. Then the project is a small-scale project. Via checking the PDD/1/ and on-site inspection, it is confirmed that the project can be identified through its GPS coordinates which is unique to the project and has been verified as correct to the project by site inspection. Hence it is confirmed that the Project Area do not overlap with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature. Hence, the project satisfied this eligibility requirement.
		- Host Country Requirements: **Eligibility Criteria in GS4GG Principles & Requirements (Version 1.2)** Section 3.1.1 Projects shall be in compliance with applicable Host Country's legal, environmental, ecological and social regulations.	Via on-site inspection, CTI confirmed that the project is located in China which is an eligible host country. Via checking the laws and regulations related to renewable energy/38/, CTI confirmed that all the laws and regulations are benefit for implementation of the project and there is no impacts to the project apply design renew.

		Eligibility Criteria in GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1) Section 3.3.1 Gold Standard VER Projects may be located in any host country or state. However, where host countries or states have mandatory operational schemes to reduce GHG emissions in any form (e.g. cap & trade, carbon tax etc.), Projects shall only be eligible if the Project Developer has either: (a) provided Gold Standard with satisfactory justification that no double counting of emission reductions occur or (b) has committed to retiring eligible units equal to the quantity of Gold Standard VERs. Refer to Annex A of this document.	Therefore, CTI confirmed that the project is in compliance with China's legal, environmental, ecological and social regulations. For the boundary and double counting, refer to above column for detail assessment.
		- Contact Details **Eligibility Criteria in *GS4GG Principles & Requirements* (Version 1.2)** Section 3.1.1 (e) As part of the Project Documentation the Project Developer shall provide (i) name and (ii) contact details of all Project Participants; AND in case of an organization (iii) the legal registration details and (iv) documentation by the governing jurisdiction that proves that the entity is in good standing (defined as being a legal or other appropriate entity registered in or allowed to operate within the required jurisdiction and with no evidence of insolvency or legal/criminal notices placed against it or any of its Directors). Gold Standard retains the right (at its own discretion) to refuse use of the Standard where reputational concerns are highlighted.	The PP's name, contact details and legal registration details have been checked in the Appendix 2 of the PDD which verified as correct by comparing the business license of PPs/7/. Furthermore, through checking the company information in National Enterprise Credit Information Publicity System/39/, CTI confirmed that PPs are in good standing and legally operated and allowed to operate within the required jurisdiction, the financial health is verified. And by checking the website, CTI confirmed that PPs never have been suspected of insolvency or legal/criminal notices placed against it or any of its Directors.
		- Legal Ownership **Eligibility Criteria in *GS4GG Principles & Requirements* (Version 1.2)** Section 3.1.1 (f) Full and uncontested legal ownership of any Products that are generated under Gold Standard Certification, (for example carbon credits) shall be demonstrated. Where such ownership is transferred from project beneficiaries this must be demonstrated transparently and with full, prior and informed consent (FPIC).	The project was invested by project owner Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd (project owner of Guanbaodu project) and Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (project owner of Liangjiangkou project), hence the project owner has full and uncontested legal ownership of the credits that will be generated under Gold Standard Certification which can be verified by checking the business license/7/, Approval of EIA/10/, and Approval of PDR/8/. Therefore, it is confirmed that the project owner has the legal ownership of the emission reductions generated by the

		Note that for certain Project types there is a requirement for full and uncontested legal land title/tenure to be demonstrated. These are contained within specific Activity or Product Requirements. All projects shall immediately report to Gold Standard any land title/tenure disputes arising.	project activity. This is also verified by on site interview with the project owner and local officers and CTI confirmed that the legal ownership of the project is uncontested and there is no changed in the 3rd crediting period of the project.
		- Other Rights **Eligibility Criteria in *GS4GG Principles & Requirements* (Version 1.2)** Section 3.1.1 (g) As well as legal title and ownership, the Project Developer shall also demonstrate where required uncontested legal rights and/or permissions concerning changes in use of other resources required to service the Project (for example, access rights, water rights etc.). Any known disputes or contested rights must be declared immediately to Gold Standard by the Project Developer and resolved prior to further project implementation in affected areas.	As above assessment, it is confirmed that the project is in line with national regulations/38/. Furthermore, the EIA approval/10/ and approval of PDR/8/ of the project have been checked, CTI verified that the project has been approved by the local government which is confirmed as in line with the local regulations. In conclusion, the project does not involve any activity that causes alteration of any resource, or contested legal rights and other disputes, therefore the need for acquiring any specific legal right is not applicable.
		- Official Development Assistance (ODA) Declaration **Eligibility Criteria in *GS4GG Principles & Requirements* (Version 1.2)** Section 3.1.1 (h) All Project Developers applying for project activities located in a country named by the OECD Development Assistance Committee's ODA recipient list and seeking Gold Standard Certification for carbon credits shall declare the Official Development Assistance (ODA) support. The Project Developer shall follow the GHG Emissions Reduction & Sequestration Product Requirements and submit the declaration at the time of Design Certification. **Eligibility Criteria in *GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1)*** Section 6.1.1 and 6.1.2 Projects are ineligible for carbon crediting under Gold Standard if the ODA assistance is provided to the project under the condition that the	Via checking the previous validation reports/5/ and verification reports, it is verified that no ODA is provided under the condition that the credits generated by the project will be transferred, either directly or indirectly, to the donor country providing ODA support.

credits generated by the Project will be transferred, either directly or indirectly, to the donor country providing ODA support. Project Developer submitting a Project located in a country named by the OECD Development Assistance Committee's ODA recipient list shall sign and submit the ODA Declaration.	
- **Eligible Greenhouse Gases** **Eligibility Criteria in *GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1)*** Section 4.1.1 Only Carbon Dioxide (CO_2), Methane (CH_4) and/or Nitrous Oxide (N_2O) are eligible for Gold Standard crediting, provided Projects comply with Gold Standard Requirements and eligibility criteria.	Via checking the MR/1/, ER sheet/2/ and comparing with applied methodology/20/, CTI verified that project considers the emission reductions of Carbon Dioxide (CO_2) only for Gold Standard crediting, thus is eligible for Gold Standard crediting.

The validation team therefore concluded project compliance with eligibility requirements in GS4GG Principles & Requirements document, version 1.2/25/, GS4GG GHG Emissions Reduction & Sequestration Product Requirements, version 2.1/29/ and GS4GG Renewable Energy Activity Requirements, version 1.4/27/, hence the project is eligible under GS4GG.

iii. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

Via checking the business license/7/ of Project Owner, Approval of EIA/10/, and Approval of PDR/8/, equipment purchasing contract/11/ and the power purchasing agreement/13/, it is verified that project owner invested in purchasing the equipment and construction of the project, thus project owner has full and uncontested legal ownership of the emission reductions that are generated under this Gold Standard project, and legal rights to alter use of resources required to service the project for ownership of ERs.

In conclusion, CTI verified that the project does not involve any activity that causes alteration of any resource, or contested legal rights and other disputes, therefore the need for acquiring any specific legal right is not applicable.

iv. Location of project

The project is located in Huaihua City, Hunan Province, China.

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

Table D-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		
Geographical Coordinates	**Project**	**Latitude**	**Longitude**
	Guanbaodu	26°40'38" N	109°44'09" E
	Liangjiangkou	26°13'11" N	109°47'45" E

The project location has been clearly provided in section A.2 of the PDD including the geo-coordinate of two hydro power plants, which has been verified by on-site inspection and the detailed coordinates have been provided respectively which have also been verified by GPS APP during on-site visit and the information is correct.

v. Technologies and/or measures

By means of an in-depth review of the PDD and the checks carried out during the on-site inspection, an assessment has been carried out whether the equipment has been changed and if the project has been implemented in line with the PDD. The following has been checked: implemented technology and project equipment.

Further CTI has checked if relevant technical equipment of the project activity has been changed or modified in PDD/1/ since the last crediting period.

The validator has performed an on-site inspection and conducted interview with representatives from Project Owner, in addition checked all the provided evidence as listed in Appendix 3, CTI found that the project has been operated normally and CTI found that the implementation of the project activity is in accordance with the GS PDD/1/.

The construction of Guanbaodu Hydropower Station (hereafter referred to as "Guanbaodu") commenced in August 2005, and its operation started in January 2008; and the construction of Liangjiangkou Hydropower Station (hereafter referred to as "Liangjiangkou") commenced in August 2006, and its operation started in January 2008, which has been confirmed in the registered Validation Report/5/ and the daily operational log/15/ against the and previous verification reports/6/.

PP has provided detailed specifications in the PDD section A.3. Validation team herewith confirms that the specifications of main equipment are the same as provided in the PDD/1/ by on-site checking the nameplates of equipment/18/ and comparing with the previous Validation Report/5/ and verification reports/6/.

Basic technical details of the project are summarized in below table.

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

Via on-site inspection, CTI confirmed that the project is a grid connected hydro power project with a total installed capacity of 5.89MW (4MW+1.89MW)/18/. The bundled project includes 2 small-scale hydro power generation projects/18/.

The Guanbaodu project is located on Qushui River. The installed capacity is 4 MW (1MW×4), and the annual net electricity generation is estimated to be 15,513 MWh. 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/13/.

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 generated electricity is delivered to the Xianxi Substation via a 35kv power transmission line, and finally connected to CCPG/13/.

The average net exported electricity of the bundled project is 21,612 MWh/yr and it helps to reduce greenhouse gas (GHG) emissions by an estimated 12,317 tCO_2e per year during the third crediting period from 01/01/2023 to 31/12/2029.

The validation team herewith confirms that the project implementation is consistent as mentioned in the PDD/1/.

vi. Scale of the project

According to the section 5.1.2 and 5.1.4 of GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1)/29/, via checking the installed capacity of the bundled hydro project by site inspection/18/, it is verified that the total installed capacity is 5.89MW, which is less than 15MW, thus is defined as a small-scale GS project.

vii. Funding sources of project

Via checking the business license/7/ of project owner, the EIA approval/10/ and approval of PDR/8/ of the project, it is verified that project owner invested in purchasing the equipment and construction of the project, there is no public funding involved.

As above assessment of ODA, it is verified that no ODA is provided under the condition that the credits generated by the project will be transferred, either directly or indirectly, to the donor country providing ODA support.

Findings

CL 01, CL 02 were raised and resolved.
Refer to Appendix 4 in this report for detail assessment.

Conclusion

CTI confirms;

(a) The process undertaken to validate the accuracy and completeness of the project is described above;

(b) The project description contained in the PDD/1/ of the GS project activity is accurate and complete;

(c) The on-site inspection was conducted by the validation team as described in this report.

CTI confirms that the type of proposed GS project activity is eligible for Gold Standard Certification.

Moreover, CTI confirms that the description of the proposed GS project activity, as contained in the PDD/1/ sufficiently covers all relevant elements, is accurate and complete and that it provides with a clear understanding of the nature of the GS project activity.

	The project was described in the PDD in accordance with requirements of Gold Standard for Global Goals Key Project Information & Project Design Document (PDD) Template version 1.2 on 14/10/2020/23/.

D.4. Application and selection of methodology

D.4.1. Selected approved methodology(ies) and methodological tools

Means of validation	The PDD employs the approved CDM methodology ACM0002 "Grid-connected electricity generation from renewable sources (Version 21.0)"/20/. The tools applied are listed as below, Tool 07: Tool to calculate the emission factor for an electricity system (Version 07.0)/21/ Tool 11: Assessment of the validity of the original current baseline and update of the baseline at the renewal of the crediting period (version 03.0.1)/22/
Findings	N/A
Conclusion	The validation team confirms that the applied methodology and methodological tools are listed completely and reference of UNCCC website have been provided.

D.4.2. Application of methodology(ies) and tools

Means of validation

The applicability condition of the methodology ACM0002 Version 21.0 is assessed as follows:

Applicability Criteria as per methodology	VVB Assessment
This methodology applies to project activities that include retrofitting, rehabilitation (or refurbishment), replacement or capacity addition of an existing power plant or construction and operation of a Greenfield power plant. This methodology applies to grid-connected renewable energy generation project activities that include: (a) Construction and operation of a Greenfield power plant; or (b) Retrofitting, rehabilitation (or refurbishment), replacement or capacity addition of an existing power plant. Further, the methodology applies to grid-connected renewable energy generation project activities which integrate Battery Energy Storage System (BESS) to a Greenfield power plant or to an existing solar photovoltaic or wind power plant.	Via on-site inspection and checking the EIA approval/10/ and approval of PDR/8/, also checking the project dedicated GS website, CTI verified that this project activity is a Greenfield power plant. The bundled project does not involve Battery Energy Storage System (BESS). Hence this criteria is applicable for this project activity.
In case the project activity involves the integration of a Battery Energy Storage System (BESS), the methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Integrate BESS with a Greenfield power plant; (b) Integrate a BESS together with implementing a capacity addition to (an) existing solar photovoltaic or wind power plant(s)/unit(s); (c) Integrate a BESS to (an) existing solar photovoltaic or wind power plant(s)/unit(s) without implementing any other changes to the existing plant(s);	The bundled project does not involve Battery Energy Storage System (BESS). Hence this criteria is not applicable for this project activity.

		(d) Integrate a BESS together with implementing a retrofit of (an) existing solar photovoltaic or wind power plant(s)/unit(s).	
		The methodology is applicable under the following conditions: (a) Hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; (b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects) the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity; (c) In case of Greenfield project activities applicable under paragraph 5 (a) above, the project participants shall demonstrate that the BESS was an integral part of the design of the renewable energy project activity (e.g. by referring to feasibility studies or investment decision documents); (d) The BESS should be charged with electricity generated from the associated renewable energy power plant(s). Only during exigencies may the BESS be charged with electricity from the grid or a fossil fuel electricity generator. In such cases, the corresponding GHG emissions shall be accounted for as project emissions following the requirements under section 5.4.4 below. The charging using the grid or using fossil fuel electricity generator should not amount to more than 2 per cent of the electricity generated by the project renewable energy plant during a monitoring period. During the time periods (e.g. week(s), months(s)) when the BESS consumes more than 2 per cent of the electricity for charging, the project participant shall not be entitled to issuance of the certified emission reductions for the concerned periods of the monitoring period.	Via on-site inspection and checking the EIA approval/10/ and approval of PDR/8/, also checking the project dedicated GS website, CTI verified that this project activity is a grid-connected hydro energy power generation project by install a Greenfield power plant which belongs to (a). Hence this criteria is applicable for this project activity.
		In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased	Via on-site inspection and checking the EIA approval/10/ and approval of PDR/8/, also checking the project dedicated GS website, CTI verified that this project activity includes hydro power plants are greenfield power plants with a new reservoir. The power density of the Guanbaodu and Liangjiangkou project is 12.20 W/m^2 and 10.69

		and the power density, calculated using equation (7), is greater than 4 W/m^2; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m^2; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m^2, all of the following conditions shall apply. The power density calculated using the total installed capacity of the integrated project, as per equation (8), is greater than 4 W/m^2; Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity. Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m^2 shall be a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project	W/m^2, respectively, which is greater than 4 W/m^2 which belongs to (c). Hence this criteria is applicable for this project activity. Refer to below section for the assessment of power density of the two plants.
		In the case of integrated hydro power projects, project proponent shall: (a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or (b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum of five years prior to the implementation of the CDM project activity.	Via on-site inspection and checking the EIA approval/10/ and approval of PDR/8/, also checking the project dedicated GS website, CTI verified that this project activity includes hydro power plants are greenfield power plants with a new reservoir which is not invoved in integrated hydro power projects.
		The methodology is not applicable to: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units;	Via on-site inspection and checking the EIA approval/10/ and approval of PDR/8/, also checking the project dedicated GS website, CTI verified that this project activity includes hydro power plants are greenfield power plants, not involved switching from fossil fuels to renewable energy sources and Biomass.
		In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most	Via on-site inspection and checking the EIA approval/10/ and approval of PDR/8/, also checking the project

plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	dedicated GS website, CTI verified that this project activity not involved in retrofits, rehabilitations, replacements, or capacity additions.

The applicability condition of the Tool 07 Tool to calculate the emission factor for an electricity system (Version 07.0) is assessed as follows:

Applicability Criteria as per methodology	VVB Assessment
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	Via on-site inspection and checking the Power purchase agreement/13/, CTI verified that the project activity supplies electricity to a grid. Hence this criteria is applicable for this project activity.
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in "Appendix 1: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	Via checking the tool and EF for the project electricity system calculation process in the ER calculation sheet/2/, CTI confirmed that the emission factor for the project electricity system is calculated for grid power plants only.
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	Via on-site inspection and checking the Power purchase agreement/13/, it is verified that the project electricity system is located totally in China, which is not an Annex I country. Hence this criteria is applicable for this project activity.
Under this tool, the value applied to the CO_2 emission factor of biofuels is zero.	Via checking the tool and EF for the project electricity system calculation process in the ER calculation sheet/2/, CTI confirmed that no biofuel is included in the grid emission factor calculation.

The applicability condition of the Tool 11 Assessment of the validity of the original current baseline and update of the baseline at the renewal of the crediting period (version 03.0.1) is assessed as follows,

	Applicability Criteria as per methodology	VVB Assessment
	This tool provides a stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period, as required by paragraph 49 (a) of the modalities and procedures of the clean development mechanism.	As the project is seeking renewal of crediting period under GS4GG, hence the tool was used to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period.
	The tool consists of two steps. The first step provides an approach to evaluate whether the current baseline is still valid for the next crediting period. The second step provides an approach to update the baseline in case that the current baseline is not valid anymore for the next crediting period.	As the project is seeking renewal of crediting period under GS4GG, hence the tool was used to evaluate the current baseline is still valid for the next crediting period.
Findings	CL 03 and CAR 01 were raised and resolved. Refer to Appendix 4 in this report for detail assessment.	
Conclusion	CTI confirms that; • It has critically assessed each applicability condition listed in the selected methodology and methodological tools and the relevant information contained in the PDD against these criteria. • The selected methodology for the GS project activity is applicable. • The selected methodological tools for the GS project activity are applicable. • The methodology was found to be in accordance with the applicable requirements in GS4GG requirements.	

D.4.3. Project boundary, sources and GHGs

Means of validation	The project boundary basically defines the physical and geographical boundary of the project facility and it is well defined in the PDD/1/(section B.3) according to ACM0002 Grid-connected electricity generation from renewable sources (Version 21.0)/20/. The project boundary includes following, The project power plant and all power plants connected physically to the electricity system that the project power plant is connected to. Via on-site inspection and checking the Power purchase agreement/13/ and the technical flow chart as provided in the PDD, it is verified that project boundary is clearly and correctly defined in the PDD as per the methodology. Emissions sources included in the project boundary have been appropriately included in the PDD. CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity is covered for baseline scenario, and the project scenario has no emissions due to the power density of the Guanbaodu and Liangjiangkou project is 12.20 W/m^2 and 10.69 W/m^2, respectively, which is greater than 10 W/m^2, thus the CH_4 emissions from the reservoir is not considered as defined in the applied methodology.
Findings	N/A
Conclusion	The project boundary is completely determined in the PDD/1/ as per ACM0002 Grid-connected electricity generation from renewable sources (Version 21.0)/20/ and is validated by CTI. Also, according to the on-site inspection and checking the Power purchase agreement/13/ and the technical flow chart in PDD, validation team confirmed that the sources and gases that are accounted to be appropriate according to the context of project activity.

D.4.4. Re-definition of Baseline scenario

Means of validation	As per the 5.1.47 of GS4GG Principles & Requirements/25/, Design Certification Renewal shall re-define the baseline scenario. Via checking the PDD, it is confirmed that the original baseline is “the electricity produced by the bundle project multiplied by a combined margin (CM) which consists of the combination of operating margin (OM) and build margin (BM) of CCPG”.

	In order to check the validity of the original baseline or its updates the validation team has applied the following stepwise approach as per the Methodological Tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" (Version 03.0.1)/22/: **Step 1: Assessment of the validity of the current baseline for the next crediting period** *Step 1.1: Check of assessment of compliance of the current baseline with relevant mandatory national and/or sectoral policies* The original baseline has been assessed to be compliant with the national legislation and policies applicable for the project activity at the time of validation. During the previous crediting periods the PD has frequently reviewed the legal requirements and policies relevant for the baseline of the project. On the basis of this, PD has arrived at the conclusion that the baseline is still in line with all applicable legislations and policies. The validation team has independently reviewed the host country law and legislation related to the renewable energy, i.e. Renewable Energy Law/38/, which has been put into effect since 2006 and still valid now which has been confirmed based on the local expertise of VVB. And based on the national law, CTI confirmed that the government still encourages the development of renewable energy projects although renewable energy projects have been developed rapidly in recently years, grid connected power generation in China is still dominated by fossil-fuel power plants. On the basis of this analysis the validation team confirms that the baseline is still in compliance with the currently applicable national legislation and other national and/or sectoral policies. Therefore the baseline did not need to be adjusted due to changes in this respect. *Step 1.2: Check of assessment to the impact of circumstances* As the baseline scenario might be affected by changed circumstances, e.g. market conditions, market prices etc. the PP has checked the baseline against such changes that have occurred since validation. This is of special importance if the baseline scenario is the continuation of the pre-project scenario. In the current case no such changes have been identified by the project participants as - changed market conditions are not likely to impact the PA. The validation team has independently checked whether there are changes in circumstances which have an impact on the baseline, such as searching the website of national government/40/, verifying the Power Purchase Agreement/13/ and interview with the PP. No such changes have been identified and thus it is deemed appropriate not to revise the baseline due to changes in circumstances. *Step 1.3: Check of assessment to whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.* This is a greenfield project, there is no baseline equipment which is to be exchanged. Furthermore no other reasons for a possible investment – other than possible legal requirements – have been identified. Thus the validation team confirms the conclusion that no changes to the baseline are required due to the likeliness of investments in equipment which impacts the baseline. *Step 1.4: Check of assessment of the validity of the data and parameters* The parameters which have been determined ex-ante in the PDD of previous crediting period need to be updated are as follows:

	According to the methodological tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of a crediting period", updates should be undertaken in the following cases: · Where IPCC default values are used, the values should be updated if any new default values have been adopted and published by the IPCC, for example, in guidelines for national GHG inventories, IPCC assessment report or special reports by the IPCC. · Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values, or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity. Via checking the "Tool to calculate the emission factor for an electricity system (version 07.0)", it is confirmed that for the 3rd crediting period, the build margin emission factor $EF_{grid,BM,y}$ calculated for the 2nd crediting period should be used. Hence, the value of parameter $EF_{grid,BM,y}$ is no need to be updated comparing with the 2nd crediting period. And as per the tool, it is confirmed that for wind and solar power generation project activities, ω_{OM} = 0.75 and ω_{BM} = 0.25 (owing to their intermittent and non-dispatchable nature) for the first crediting period and for subsequent crediting periods; All other projects: w_{OM} = 0.5 and w_{BM} = 0.5 for the first crediting period, and w_{OM} = 0.25 and w_{BM} = 0.75 for the second and third crediting period. Hence, CTI confirmed that the values used for the calculation of $EF_{grid,OM,y}$ and $EF_{grid,CM,y}$ are updated in the 3rd crediting period in this PDD. **Step 2: Check of the update to the current baseline and the data and parameters** *Step 2.1: Check of the update to the current baseline* As per step 1 above, it is confirmed that the current baseline does not need to be updated. *Step 2.2: Check of the update to the data and parameters* Refer to assessment of step 1.4, as per the tool, updated baseline emission factors for the project ($EF_{grid,OM,y}$ and $EF_{grid,CM,y}$) are re-calculated, the data of $EF_{grid,OM,y}$ is calculated as 0.8587 tCO_2e/MWh, and the data of $EF_{grid,CM,y}$ is calculated as 0.56995 tCO_2e/MWh which has been verified in below section of this report. Based on the checking the description provided in PDD against the applied methodology, it proves that the baseline scenario has been re-defined in the section B.4 of the PDD is correct and reasonable.
Findings	CAR 02 was raised and resolved. Refer to Appendix 4 in this report for detail assessment.
Conclusion	The validation team based on the description provided above with regard to the assessment of the requirements confirms that: (a) The approved baseline methodology has identified the baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed GS4GG project activity. (b) The baseline scenario has been determined according to the applied methodology/20/ and "TOOL 07: Tool to calculate the emission factor for an electricity system" (Version 07.0)/21/ and re-defined as per the Tool 11 Assessment of the validity of the original current baseline and update of the baseline at the renewal of the crediting period (version 03.0.1)/22/. (c) The approved methodology and tools has been correctly applied to identify the most reasonable baseline scenario for 3rd certification cycle, and the re-defined baseline scenario reasonably represents what would have occurred in the absence of the GS4GG project activity in the 3rd certification cycle.

D.4.5. Demonstration of additionality

Means of validation	Demonstration of Additionality
	Not applicable to the renew design. **Prior Consideration** Via the previous assessment, the bundled project was registered as a Gold Standard project on 31/12/2010 and the start date of the first crediting period of the bundled project is defined as 01/01/2009. The bundled project has completed the transition to GS4GG on 29/10/2019 with a renewable crediting period of 3*7 years, hence, VVB confirmed that the prior consideration is not applicale to the project by submission timelines and also for the renew design. **Ongoing Financial Need** The project is under Design Certification Renewal, as per GS4GG Principle and Requipment (version 1.2)/25/, 4.1.52 and 4.1.53 and 5.1.47 (e), the ongoing financial need should be demonstrated. As per the requirement from GS4GG, for demonstrate the ongoing financian need, below points have been assessed *(a) Information highlighting the key categories and amounts or relative proportions (%) of project income and outgoings, including the relative proportion of certification related cost and revenue.* Based on the validation and verification experiences from VVB, CTI confirmed that the cost of certification are relatively fixed and limited, and via checking the previous verification reports/6/ and GS dedicated website of the project/31/, CTI verified that the project has been verified 9 times in the first and second crediting period, and a total of 193,998 tons of GS VERs have been issued for the period from 01/01/2009 to 31/12/2020 and 174,318 tons of GS VERs have been retired, besides, the emission reduction during the period from 01/01/2021 to 31/12/2021 is seeking GS VERs issuance under GS program which means that the revenues from GS VERs are continuous. Furthermore, via checking the 2021 financial statement/41/ provided by Guanbaodu project owner, CTI confirmed that the the annual revenue of Guanbaodu project from GS certification have been used in the following aspects: 28% for employee salary, 40% for power plant equipment maintenance supplement, 13% for employee welfare, 6% for employee training, 3% for employee health examination, and about 10% for the cost of validation, verification and certification for GS development cost. While for Liangjiangkou project, via checking the 2021 financial statement/41/ provided by Liangjiangkou project owner, CTI confirmed that the the annual revenue of Liangjiangkou project from GS certification have been used in the following aspects: 22% for employee salary, 39% for power plant equipment maintenance supplement, 11% for employee welfare, 14% for employee training, 2% for employee health examination, and about 12% for the cost of validation, verification and certification for GS development cost. Hence, based on above checked figures, CTI concluded that the key categories and amounts or relative proportions (%) of project income and outgoings, including the relative proportion of certification related cost and revenue have been provided and verified as reasonable, which means that the revenues from GS VERs can fully cover the certification related cost. *(b) Description on how finance derived Gold Standard Certification contributes to or is being used to sustain or enhance the project.* As assessed above, the project issued GS VERs constinuously, and the related carbon revenues have been playing an important role in helping project owner to contribute to SDGs, especially for hiring 23 jobs position form local residents. In addition, in the 3rd crediting period, the bundled project will preserve 3 permanent job opportunities in managerial role for local women and will still provide 23 jobs position for local residents. Besides, carbon revenues can also ensure the continuous supply of renewable electricity generated by the bundled project and increasing the share of renewable electricity in local power grid which has been verified as reasonable by site inspection and checking the SDG achievements in the previous verification reports of the project.

	(c) Where no revenue is realised from Gold Standard certification during a given period, this would be considered a FAR for the next Issuance. Not applicable as the project issued GS VERs constinuously before the start date of the 3rd crediting period which is verified by checking the previous verification reports/6/. In conclusion, the project meets the requirements related to the additionality for the design renew from GS4GG Principle and Requipment (version 1.2), thus deemed as additional.
Findings	CL 04 was raised and resolved. Refer to Appendix 4 in this report for detail assessment.
Conclusion	The validation team confirms that all the documented evidence listed and reviewed during the validation process are found correct and is able to confirm that: a) The demonstration of additionality is not applicable for the design renew. b) Prior consideration is confirmed as not applicable for the design renew. c) Ongoing financial need is assessed that prove the finance derived GS certification is material to the ongoing sustainability of the project. d) As per the detailed assessment, the additionality of the project activity is justified sufficiently. Based on this validation steps it can be confirmed that the documentation assessed is appropriate to prove that the project activity is additional.

D.4.6. Estimation of SDG impacts

Means of validation

PD has selected four SDGs and targets, the demonstration is provided as below,

SDGs	Targets & Indicator	Validation Opinion
SDG 5 Gender Equality	**Target:** 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life. **Indicator:** Number of women serving in managerial/ leadership /ownership role	Via on-site inspection and checking the PDD/1/, previous verification reports/6/, CTI confirmed that the project activity employed number of women serving in managerial/ leadership /ownership role in the project and basic trainings for local women to improve living conditions and upgrade their skills in absence of the bundled project. The project provide job opportunities to women in managerial/ leadership /ownership role. Hence validation team confirms the project contribution to SDG 5.
SDG 7 Affordable and Clean Energy	**Target:** 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix **Indicator:** Total electricity produced: Renewable	Via on-site inspection and checking the PDD/1/, previous verification reports/6/ and power purchase agreement/13/, CTI confirmed that the project activity uses renewable hydro energy to generate electricity displacing fossil fuel dominated electricity generation in CCPG and thus resulting in greenhouse gases emission reductions and provides the affordable and clean Energy in China. The project enable access to clean renewable and sustainable energy. Hence validation team confirms the project contribution to SDG 7.
SDG 8 Decent Work and	**Target:** 8. 5 By 2030, achieve full and productive employment and	Via checking the previsou verification reports/6/, CTI verified that project has provided paid work

Economic Growth	decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value **Indicator:** Total number of jobs	to local residents to both male and female which has also been confirmed during on-site interview with employees. Thus the project will achieve full and productive employment and decent work for all. Hence validation team confirms the project's contribution to SDG 8.
SDG 13 Climate Action	**Target:** N/A **Indicator:** Amount of GHGs emissions avoided or sequestered	The project reduces GHG emissions due to use renewable hydro energy to generate electricity displacing fossil fuel dominated electricity generation in CCPG. Hence, the project reduces GHG emission compare to baseline condition thus to combat climate change. Hence validation team confirms the project's contribution to SDG 13.

The validation of selected methodology(ies) or proposed approach for calculating baseline and project outcomes is tabulated as below:

SDGs	Approaches	Validation Opinion
SDG 5 Gender Equality	Monitoring Indicator: Number of women serving in managerial/ leadership /ownership role Baseline outcomes: 0 Project outcomes: For ex ante estimation, number of women serving in managerial/ leadership /ownership role was based on previous employment status of the project which is confirmed via site interview with women employees. The actual data will be monitored by checking the payroll as per the monitoring plan which assessed as below. The net impact of SDG5 = Project outcome of SDG5- Baseline outcome of SDG5= 3 women employees in managerial/ leadership /ownership role	SDG 5 outcome will be monitored through the parameter Number of women serving in managerial/ leadership /ownership role. By gathering and analyzing payroll, the number of women employees serving in managerial/ leadership /ownership role generated by the project activity will be determined. Thus validation team confirms selected approach is applicable to calculate the project outcomes.
SDG 7 Affordable and Clean Energy	Monitoring Indicator: Total electricity produced: Renewable Baseline outcomes: 0 Project outcomes: For ex ante estimation, Total electricity produced: Renewable by Guanbaodu and	SDG 7 outcome will be monitored through the parameter *Total electricity produced: Renewable* By gathering and analyzing electricity meters' data, the Total electricity produced: Renewable reached by the project activity which confirmed have access to

		Liangjiangkou project delivered to the CCPG is respectively 15,513 MWh/yr and 6,099 MWh/yr was determined ex ante in the first crediting period which is confirmed as same to the PDD and previous validation report/5/. The actual data will be monitored by electricity meters as per the monitoring plan which assessed as below. The net impact of SDG7 = Project outcome of SDG7- Baseline outcome of SDG7= 21,612MWh	affordable and clean energy will be determined. Thus validation team confirms selected approach is applicable to calculating the project outcomes.
	SDG 8 Decent Work and Economic Growth	Monitoring Indicator: Total number of jobs Baseline outcomes: 0 Project outcomes: In project situation, the Total number of jobs will be recorded. 23 jobs (16 for Guanbaodu and 7 for Liangjiangkou) for local people created. Source of data will be payroll. Net impact of SDG8=Project outcome of SDG8 – Baseline outcome of SDG8=23 of jobs	SDG 8 outcome will be monitored through the parameter Total number of jobs by checking the payroll. By recording jobs and pay salary to employees that have been created through the project, the number of workers created in the project related activities will be determined. Thus validation team confirms selected approach is applicable to calculating the project outcomes.
	SDG 13 Climate Action	Monitoring Indicator: Emission reduction Calculation Method: ACM0002 Grid-connected electricity generation from renewable sources (Version 21.0)/20/ Baseline outcomes: 0 Project outcomes: 12,317 tCO_2/year Emission Reductions Net impact of SDG13=Project outcome of SDG13 – Baseline outcome of SDG13= 12,317 tCO_2/year Emission Reductions	SDG 13 outcome will be monitored through calculation of Amount of GHGs emissions avoided or sequestered by ongoing data collection and storage for ER calculation; and monitoring. By measuring emission reductions generated from hydropower stations of the project, the outcomes of project combat climate change will be determined. Thus validation team confirms selected approach is applicable to calculating the project outcomes. The methodological choices/approaches to estimate the GHG Emission Reduction Values will be assessed in below.

Specific calculation for SDG 13:

The applied methodology ACM0002 Version 21.0/20/ defines the methodological steps to determine the baseline emissions, project emissions and leakages and emission reductions by the project activity.

Project Emissions

As per ACM0002/20/, due to the project is a hydro power plant, the formula used for the determination of project emissions which is confirmed as consistent with the latest approved PDD and applied methodology as below:

$$PE_y = PE_{FF,y} + PE_{HP,y} \quad (1)$$

Where:

PE_y	=	Project emissions (tCO_2/yr)
$PE_{FF,y}$	=	Project emissions from fossil fuel consumption in year *y* (tCO_2/yr)
$PE_{HP,y}$	=	Project emissions from water reservoirs of hydro power plants in year *y* (tCO_2e/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.

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

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

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}} \quad (2)$$

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, both the Guanbaodu and Liangjiangkou projects are greenfield hydro power projects with new reservoirs, hence Cap_{BL} and A_{BL} are zero.

for Guanbaoodu:

Cap_{BL} = 0,

A_{BL} = 0,

Cap_{PJ} = 4MW which is verified by site inspection of the nameplate of equipment/18/ and checking the previous verification reports/6/.

A_{PJ} = 328,000 m^2 which is verified by checking the measuring report of the reservoir for the project activity in 2022 by a qualified third party/12/.

Therefore PD=12.20 W/m^2, which is greater than 10W/m^2;

and **for Liangjiangkou,**

Cap_{BL} = 0,

A_{BL} = 0,

Cap_{PJ} = 1.89MW which is verified by site inspection of the nameplate of equipment/18/ and checking the previous verification reports/6/.

A_{PJ} = 176,800 m^2 which is verified by checking the measuring report of the reservoir for the project activity in 2022 by a qualified third party/12/.

Therefore PD=10.69 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.

Baseline Emissions

Via checking the applied methodology, as above assessment of the baseline scenario of the project, CTI confirmed that the baseline emissions BE_y in a year y are calculated as:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y} \quad (3)$$

Where:

BE_y	=	Baseline emissions in year y (tCO_2e)
$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project in year y (MWh)
$EF_{grid,CM,y}$	=	Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)

As per themethodology, for the greenfield project,

$$EG_{PJ,y} = EG_{facility,y} \quad (4)$$

Where:

$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project in year y (MWh)
$EG_{facility,y}$	=	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh)

Hence

$$BE_y = EG_{facility,y} \times EF_{grid,CM,y} \quad (5)$$

According to the Tool 07 "Tool to calculate the emission factor for an electricity system" (Version 07.0)/21/, the marginal emission factor (OM) and capacity marginal emission factor (BM) of the CCPG can be calculated, and then the combined marginal emission factor CM can be calculated.

$$EF_{grid,CM,y} = EF_{grid,OM,y} * w_{OM} + EF_{grid,BM,y} * w_{BM} \quad (4)$$

Where:

$EF_{grid,CM,y}$	Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)
$EF_{grid,BM,y}$	Build margin CO_2 emission factor in year *y* (t CO_2/MWh)
W_{BM}	Weighting of build margin emissions factor (per cent)
$EF_{grid,OM,y}$	Operating margin CO_2 emission factor in year y (t CO_2/MWh)
W_{OM}	Weighting of operating margin emissions factor (per cent)

As per applied methodology, for hydro power generation project activities, the default values of w_{OM} and w_{BM} should be 0.25 and 0.75.

Via checking the 6 steps demonstrated by PD for calculation of $EF_{grid,CM,y}$, CTI confirmed that the results are correct and process is in line with the tool.

Leakage

No leakage emissions need to be considered as per the applied methodology. Therefore, LE_y=0 tCO_2.

Emission Reduction

The emission reduction ER_y during a given year y is calculated as follow:

$$ER_y = BE_y - PE_y \quad (4)$$

Where:

ER_y Emission reductions in year y (t CO_2e/yr).

BE_y Baseline emissions in year y (t CO_2e/yr).

PE_y Project emissions in year y (t CO_2/yr).

Demonstration of Data and parameters fixed ex ante for monitoring contribution to each of the four SDGs is tabulated as below:

Ex Ante Data and Parameters

Parameters	Value	Reference	Assessment by VT
***$EF_{grid,CM,y}$* – SDG 13** Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)	0.56995 tCO_2e/MWh	"2019 China Regional Grid Baseline Emission Factors" published by Ministry of Ecology and Environment of the people's Republic of China/19/	Confirmed as correct for ex ante determination for the 3rd crediting period as per the "Tool to calculate the emission factor for an electricity system" (Version 07.0)/21/
Cap_{BL} – SDG 13 Installed capacity of the hydro power plant before the implementation of the project activity. For new hydro power plants, this value is zero	0	Methodology	Confirmed as 0 due to the project is new hydro power plant in line with the applied methodology.
A_{BL} – SDG 13 Area of the single or multiple reservoirs measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m^2).	0	Methodology	Confirmed as 0 due to the project is a new hydro power plant in line with the applied methodology.

For new reservoirs, this value is zero			

Demonstration of Ex ante estimation of impacts linked to each of the four SDGs is tabulated as below:

SDGs	Ex ante estimation of impacts	VVB Assessment
SDG 5 Affordable and Clean Energy	Baseline outcomes: 0 Project outcomes: 3 women in managerial/ leadership /ownership role The estimation is based on actual status of the project in previous verifications. Actual measurements will be monitored by checking the payroll.	Baseline outcome confirmed as 0 due to no hydro power plant was established in the baseline scenario hence no jobs provided to women. Project outcome confirmed as 3 of of women serving in managerial/ leadership /ownership role which is verified by site interview with women staffs.
SDG 7 Affordable and Clean Energy	Baseline outcomes: 0 Project outcomes: 21,612 MWh of renewable electricity produced The estimation is determined ex ante in the first crediting period which is confirmed as same to the PDD and previous validation report/5/. Actual measurements will be monitored by electricity meters.	Baseline outcome confirmed as 0 due to no hydro power plant was established in the baseline scenario; Project outcome confirmed as 21,612 MWh of renewable electricity produced which is verified by checking the PDD and previous validation report/5/.
SDG 8 Decent Work and Economic Growth	Baseline outcomes: 0 Project outcomes: 23 jobs The estimation is based on actual status of the project in previous verifications. Actual measurements will be monitored by checking the payroll.	Baseline outcome confirmed as 0 due to no jobs created without project; Project outcome confirmed as 23 jobs which will be verified by checking payroll.
SDG 13 Climate Action	Baseline outcomes: 0 Project outcomes: 12,317 tCO_2 GHGs emissions avoided or sequestered Ex ante emission is based on the ER sheet/2/	Baseline outcome confirmed as 0 GHGs emissions avoided or sequestered by checking the ER sheet/2/ Project outcome confirmed as 12,317 tCO_2 GHGs emissions avoided or sequestered by checking the ER sheet/2/.

For Baseline Emission calculation, based on above assessment, the baseline emissions can be calculated as follows:

$$BE_y = EG_{facility,y} \times EF_{grid,CM,y} \quad (5)$$

For $EF_{grid,CM,y}$, the calculation is checked in line with the Tool to calculate the emission factor of an electricity system, version 07.0/21/ as per formular (4) above.
All the values are confirmed as correct by checking the "2019 China Regional Grid Baseline Emission Factors" published by Ministry of Ecology and Environment of the people's Republic of China/19/ and Tool to calculate the emission factor of an electricity system, version 07.0/21/.
Hence

$$EF_{grid,CM,y} = EF_{grid,OM,y} * w_{OM} + EF_{grid,BM,y} * w_{BM}$$

= 0.8587 tCO_2e/MWh*0.25 + 0.4737 tCO_2e/MWh*0.75
= 0.56995 tCO_2e/MWh

The $EG_{facility,y}$ is estimated as 21,612 MWh as per the PDD/1/ and consistent with the previous validation report/5/.
The annual baseline emission of the bundled project is calculated as below,
$BE_y = EG_{facility,y} \times EF_{grid,CM,y}$
= 21,612MWh×0.56995 tCO_2e/MWh
= 12,317 tCO_2e/yr
Among this,
For Guanbaodu project,
$BE_y = EG_{facility,y} * EF_{grid,CM,y}$ =15,513 MWh/yr *0.56995 tCO_2e/MWh=8,841 tCO_2e
For Liangjiangkou,
$BE_y = EG_{facility,y} * EF_{grid,CM,y}$ =6,099 MWh/yr *0.56995 tCO_2e/MWh=3,476 tCO_2e

Project Emissions
Based on above assessment, PE_y=0 tCO_2

Leakage
Based on above assessment, for the project, LE_y is not considered.

Emission reductions
$ER_y = BE_y - PE_y$

Based on the above assessment of the ex ante determined values, it is verified that **the annual ex ante determined ERs calculated result is 12,317 tCO_2/yr.**

The detail of emission reduction calculation is transparently discussed in the PDD/1/. The assessment team has checked the PDD/1/ and ER sheet/2/ for the detail calculation of all the particulars and found it to be correct.

Demonstration of Summary of annual average ex ante estimates of each SDG impact over the crediting period is tabulated as below:

SDG	Baseline estimate	Project estimate	Net Impact
5	0 women serving in managerial/ leadership /ownership role	3 women serving in managerial/ leadership /ownership role	3 women serving in managerial/ leadership /ownership role
7	0 MWh of renewable electricity produced	21,612 MWh/yr of renewable electricity produced	21,612 MWh/yr of renewable electricity produced
8	0 job	23 jobs	23 jobs
13	0 tCO_2e GHGs emissions avoided or sequestered	12,317 tCO_2e/yr GHGs emissions avoided or sequestered	12,317 tCO_2e/yr GHGs emissions avoided or sequestered

Findings	N/A
Conclusion	The validation team has cross checked the parameters and values related to the emission reduction and confirmed that justification of the mentioned values is correct.

D.4.7. Monitoring plan

Means of validation

The monitoring plan in the PDD/1/ is correctly applied to the project activity. The monitoring plan has been found to be in compliance with the requirements of the applied methodology/20/.

The monitored data and parameters are assessed as below table by validation team,
Data and parameters to be monitored:

Relevant SDG	Parameter	Monitoring frequency	Assessment

	13	ER_y- Amount of GHGs emissions avoided or sequestered	Annually	ER_y will be calculated as per the formular in applied ACM0002 (Version 21.0). The monitoring and calculation will be conducted as per the request in the PDD which in compliance with the applied methodology.
	13	Cap_{PJ} - Installed capacity of the hydro power plant after the implementation of the project activity	Yearly	Cap_{PJ} will be measured by checking the nameplates of all the generators installed in the project. Ex ante value is verified as correct by site inspection checking the nameplates of all the generators installed in the project. The monitoring will be conducted as per the request in the PDD which in compliance with the applied methodology.
	13	A_{PJ} - Area of the single or multiple reservoirs measured in the surface of the water, after the implementation of the project activity, when the reservoir is full	Yearly	A_{PJ} will be measured by local River Management Station which will be derived from third party's report. Ex ante value is verified as correct by checking measuring report of the reservoir for the project activity in 2022 by a qualified third party/12/. The monitoring will be conducted as per the request in the PDD which in compliance with the applied methodology.
	13	PD - Power density of project	Yearly	PD will be calculated as per the formular in applied ACM0002 (Version 21.0). The monitoring and calculation will be conducted as per the request in the PDD which in compliance with the applied methodology.
	7&13	$EG_{facility,y}$ - Quantity of net electricity generation supplied by the project plant/unit to the grid in year y	Continuous measurement and monthly recording	$EG_{facility,y}$ is calculated by the Electricity delivered to the power grid generated by the project minus the electricity imported from the power grid by the project The monitoring of electricity delivered to the power grid generated by the project and the electricity imported from the power grid by the project will be measured by electricity meters as per the request in the PDD which in compliance with the applied methodology.

				Meter readings will be cross checked by Electricity Transaction Notes (ETN) or other electricity receipts.
	5	Number of women serving in managerial/ leadership /ownership role	Annually	The value used is 3 (2 for Guanbaodu and 1 for Liangjiangkou) for ex-ante determination as per the actual situation of the project implementation and confirmed as site interview with project owner. It will be monitored annully through checking the payroll contains the information about employees' name, gender, position and salary and number of women employees serving in managerial/ leadership/ ownership is to be check.
	8	Total number of jobs	Annually	The value used is 23 (16 for Guanbaodu and 7 for Liangjiangkou) for ex-ante determination as per the actual situation of the project implementation and confirmed as site interview with project owner. It will be monitored annully through checking the payroll contains the information about employees' name, gender, position and salary and number of permanent jobs is to be check.
	Safeguarding Principle 9.4	Water quality - The impact of wastewater on local water body the operation period	Yearly	The impact of wastewater on local water body during the operation period will be monitored by stakeholders' questionnaires. The verifier will check the stakeholder questionnaires and confirmed by interviews of plant personnel and local stakeholders.
	Safeguarding Principle 9.4	Solid wastes - Management of the domestic rubbish during the operation period	Yearly	The management of the domestic rubbish during the operation period will be monitored by relevant management. The verifier will check the records of relevant management and confirmed by interviews of plant personnel and local stakeholders.
	Safeguarding	Biodiversity (species and habitat	Yearly	The impacts of project activity on fish and organism species and habitats during the

Principle 9.4	conservation) - The impacts of project activity on fish and organism species and habitats		operation period will be monitored by stakeholders' questionnaires. The verifier will check the stakeholder questionnaires and confirmed by interviews of plant personnel and local stakeholders.

The assessment team has confirmed that the monitoring parameters are sufficient to calculate each SDG impacts especially the emission reductions/2/ in accordance with the methodology/20/. The parameters will be calculated or measured as mentioned above in section D.4.8.

Sampling Plan

Sampling plan is not applicable.

Other elements of monitoring plan

The validation team has analyzed the content to the monitoring plan against the requirements of the applied methodology and the applicable methodological tools and came to the following conclusions. The validation team evaluated the feasibility and sufficiency of the monitoring plan. The key components of the monitoring plan are as follows.

Objects to be monitored:

Listed as above table and assessed by validation team.

Monitoring framework:

The PDD contains a diagram illustrating the Organization Structure of the Monitoring Team to be implemented by the project owner in order to implement the project activity. The General Manager conducts the overall responsibility for the monitoring process, GS monitoring team are responsible for the monitoring of all the parameters monitored for this monitoring period. And all the data was reviewed by the project representative. The organizational structure is considered sufficient to fulfil the monitoring requirements of the methodology and ensure that emission reductions verified for this monitoring period.

Measurement methods and equipment installation:

Measurement instruments are described in the monitoring plan as subject to appropriate national standards with respect to installation, accuracy and calibration interval. Main instruments electricity meters are used to monitor $EG_{facility,y}$.

Guanbaodu

For monitoring parameters related to SDG 13, net electricity supplied to the grid by the project ($EG_{facility,y}$) is monitored, the generated electricity is boosted from 6.3 kV to 35kV and delivered to the Gantang Transformer Station then delivered to Jingzhou Power Grid, and finally connected to CCPG.

PPA/13/ describes the grid connection manner, which is consistent with the description in the PDD; Two electric meters (Gateway meter M2 installed at the Gantang Transformer Station and backup meter M1 installed at the power station of the project respectively, the two meters are bi-directional with accuracy 0.5s for M2 and 0.5 for M1) for monitoring the Electricity exported to the grid by the project and Electricity imported from the grid have been installed well.

Net electricity supplied to the grid by the project $EG_{facility,y}$ is calculated based on the Electricity exported to the grid by the project minus Electricity imported from the grid.

The latest version of Power Purchase Agreement/13/ between the project owner and the grid company which has been checked to verify the above descriptions.

For monitoring parameters related to SDG 5,7,8, the monitoring officer will carry out technical training meetings and the stakeholders' questionnaires annually, and the accountant will provideselectricity receipts and monthly payroll which contain the information about employees' name, gender, position and salary every year.

	Liangjiangkou For monitoring parameters related to SDG 13, net electricity supplied to the grid by the project ($EG_{facility,y}$) is monitored, the generated electricity is boosted from 6.3 kV to 35kV and delivered to the Shuangjiang Transformer Station then delivered to Hunan Power Grid, and finally connected to CCPG. PPA/13/ describes the grid connection manner, which is consistent with the description in both the MR and the registered PDD; One electric meter (Gateway meter M1 installed at the Shuangjiang Transformer Station, the meter is bi-directional with accuracy 0.5s) for monitoring the Electricity exported to the grid by the project and Electricity imported from the grid have been installed well. Net electricity supplied to the grid by the project ($EG_{facility,y}$) is calculated based on the Electricity exported to the grid by the project minus Electricity imported from the grid. The latest version of Power Purchase Agreement/13/ between the project owner and the grid company which has been checked to verify the above descriptions. For monitoring parameters related to SDG 5,7,8, the monitoring officer will carry out technical training meetings and the stakeholders' questionnaires annually, and the accountant will provideselectricity receipts and monthly payroll which contain the information about employees' name, gender, position and salary every year. This equipment setup is considered sufficient to carry out the monitoring requirements of the methodology, and the appropriate national standards will be followed. **Meters maintenance and calibration:** The periodical calibration and maintenance of the meters should comply with the related national standards. The calibration of the electric meter should be carried out once a year by the qualified third party. **Quality assurance and quality control procedures:** The PDD contains sufficient description on how quality will be controlled and assured in the monitoring of all the SDG impacts. All data collected as part of monitoring plan will be archived and kept at least 2 years after the end of the last crediting period. **Emergency Procedure** **For Guanbaodu:** The readings of the backup meter M1 will be used for ER calculation with deduction of the transmission loss if the gateway meter M2 works abnormally, and if both were malfunction, and net electricity supplied to grid will be confirmed based on the conventional process accepted by project owner and Grid Company during the meter troubleshooting period. **For Liangjiangkou:** The net electricity supplied to grid will be confirmed based on the conventional process accepted by project owner and Grid Company during the meter troubleshooting period if the gateway meter M1 works abnormally.
Findings	N/A
Conclusion	The validation team confirms: • The parameters which are part of monitoring plan is in line with the PDD • The monitoring arrangements described in the monitoring plan of the PDD /1/ are feasible within the project design. • The PD will be able to implement the monitoring plan.

D.5. Start date, crediting period type and duration

Means of validation	The start date of the Guanbaodu is 08/08/2005 which is the date on signing the equipment purchase contract and of Liangjiangkou is 02/08/2006 which is the date on signing the construction contract, which have been defined in the previous PDD and validation report/5/. The lifetime of the project is defined as 20 years which have been defined in the previous PDD and validation report/5/. The bundled project completed the registration in GS on 31/12/2010 and the start date of the first crediting period of the bundled project is defined as 01/01/2009. The

	bundled project has completed the transition to GS4GG on 29/10/2019/4/ with a renewable crediting period of 3*7 years. The 2nd crediting period is from 01/01/2016 to 31/12/2022/5/. This design renew validation is conducted for the project to be renewed in the 3rd certification cycle which is continuous after the 2nd crediting period. The start date of 3rd crediting period is 01/01/2023. Total length of crediting period is 21 years which has been assessed during the transition process/4/.
Findings	N/A
Conclusion	The project start date as stated in PDD/1/ has been validated as per the definition of start date given in the GS4GG Principles and Requirements/25/. • The 3rd crediting period from 01/01/2023 to 31/12/2029 is correctly defined as per GS4GG Principles and Requirements/25/. • The expected lifetime of the project indicated in the PDD is correct.

D.6. Safeguarding principles and Gender Sensitive assessment

Means of validation

The validation team has also checked mitigation measure with respect to the nine Safeguarding Principles. The validation opinion is detailed below,

No	Safeguarding principles	Assessment of relevance to the project	Mitigation measure	Validation Opinion
1	**Human Rights**			
	a. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights. b. The Project shall not discriminate with regards to participation and inclusion.	No	Not required	After China's reform and opening up in 1992, China formally established modern social development, basic human rights protection system and social insurance system reform which is verified based on local expertise of the validator, hence it is verified that no impact of the human existence to this kind of project. a. The project complies with Chinese Labour Law and relevant regulations while China has ratified two core UN human rights treaties, including the UN International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR)/38/ in China which is confirmed as completely obey the nation and local laws as verified by checking the approval of PDR/8/ and will not lead to

					violations or human rights abuses in any kind. As such there is no risk involved and therefore the project does not violate this safeguarding principle. b. Via on-site inspection and interview with operation staffs and local residents, CTI confirmed that there was a stakeholder consultation carried out regarding the project. Local people were actively involved in expressing their opinions and comments. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
	2	**Gender Equality**			
		a. The Project shall not directly or indirectly reinforce gender-based discrimination and shall not lead to/contribute to adverse impacts on gender equality and/or the situation of women. b. Projects shall apply the principles of nondiscrimination, equal treatment, and equal pay for equal work c. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks. d. (where required) Summary of opinions and recommendations of an Expert Stakeholder(s)	No	N/A	The project activity uses renewable hydro energy to generate electricity displacing fossil fuel dominated electricity generation in CCPG and thus resulting in greenhouse gases emission reductions and provides the affordable and clean Energy in China. a. The validation team has observed that the project will not directly or indirectly reinforce gender-based discrimination and shall not lead to/contribute to adverse impacts on gender equality and/or the situation of women. Besides, the validation team has verified that the project gives women more access to or control resources, entitlements and benefits by providing easy access to equal job opportunities.

					b. Via site inspection and interview with women staffs, it is verified that project did not set up any barriers to the employment of women and has generated income and jobs opportunities for women. Besides, qualified local residents, both men and women, are recruited to work for the project. During stakeholders' consultation process in previous monitoring periods, comments were collected from the local people, including both men and women which has been assessed in the previous validation and verification process. c. It is concluded that the project apply the principles of nondiscrimination, equal treatment, and equal pay for equal work which is in line with the Labor Law of the People's Republic of China/38/ and China's gender related policies like Women's Rights Protection Law/38/. d. It is verified that there is no opinions and recommendations of an Expert Stakeholder(s) due to the project will not directly or indirectly reinforce gender-based discrimination and shall not lead to/contribute to adverse impact. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
	3	**Community Health, Safety and Working Conditions**			
		a. The Project shall avoid community exposure to	Yes	N/A	The project activity uses renewable hydro energy to generate

		increased health risks and shall not adversely affect the health of the workers and the community.			electricity displacing fossil fuel dominated electricity generation in CCPG and thus resulting in greenhouse gases emission reductions and provides the affordable and clean and sustainable energy in China. The validation team has observed through site visit that most of the employees work in indoor environment (at the office), the project owner provides safety protection equipment and training opportunities for employees periodically and provide safe and healthy working conditions including a health and safety management system, then the project will not cause community exposure to increased health risks and shall not adversely affect the health of the workers and the community which is verified by local expertise from validation team. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
	4	**Cultural Heritage, Indigenous Peoples, Displacement and Resettlement**			
		4.1 Sites of Cultural and Historical Heritage			
		Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	No	N/A	During on-site inspection using the GPS devices, CTI confirmed that the bundled project area does not include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture. The project does not utilise Cultural Heritage, including the knowledge,

					innovations, or practices of local communities, affected communities. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
		4.2 Forced Eviction and Displacement			
		Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	N/A	During on-site inspection, CTI confirmed that the project activity uses renewable hydro energy and provides the affordable and clean and sustainable energy in China. Via checking the previous PDD and validation report, CTI confirmed that the increased water level in the reservoir of the bundled project may lead to a little more flooded area including farmland and 6km-long path and before the construction, the project owner had compensated for farmland and path as per the compensation agreement, the compensation fee had been paid by the project owner before the construction of the bundled project which have been verified in the 1st crediting period validation process. And via site inspection, CTI confirmed that the bundled project does not involve the physical or economic relocation of peoples (temporary or permanent, full or partial) in the 3rd crediting period. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
		4.3 Land Tenure and other rights			

			Does the Project require any change to land tenure arrangements and/or access rights? For Projects involving land use tenure, are there any uncertainties with regards to land tenure, access rights, usage rights or land ownership?	No	N/A	During on-site inspection and checking the approval of PDR/8/, CTI confirmed that project is operated by the project owner and the project was approved by local Development and Reform Commission. Before the construction, the project owner had compensated for lands might be impacted by the project as per the compensation agreement, the compensation fee had been paid by the project owner before the construction of the bundled project which have been verified in the 1st crediting period validation process. And via site inspection, CTI confirmed that the bundled does not require any change or had uncertainties with regards to land tenure, access rights, usage rights or land ownership in the 3rd crediting period. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
			4.4 Indigenous people			
			Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	N/A	During on-site inspection and interview with local stakeholders, CTI confirmed that people have the same and equal access to the clean and renewable energy, and no one will be affected directly or indirectly in a negative way by the project. Besides, there are no indigenous people present within the area of influence nor the project is located on territory claimed by

					indigenous people. This is verified by on-site inspection and interview. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
	5	**Corruption**			
		a. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.	No	N/A	During on-site inspection, CTI confirmed that the project is implemented on the ground by the social enterprise. The ethical codes of the project partners are against corruption. In addition, the companies comply with all related economic laws and regulations of China confirmed by checking the business license of project owner/7/. Hence, the project does not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt projects. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
	6	**Economic Impacts**			
		6.1 Labour Rights			
		a. The Project Developer shall ensure that there is no forced labour and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. b. Workers shall be able to establish and	No	N/A	Via site interview with employees, it is verified that the employees are hired according to Labor Law of the People's Republic of China/38/ and following the relevant ILO conventions/30/. Hence no any form of forced or compulsory labor. Via checking the working agreements/17/, it is verified that agreement specify working hours (must not exceed 48 hours per week on a

		join labour organisations c. Working agreements with all individual workers shall be documented and implemented and include: a) Working hours (must not exceed 48 hours per week on a regular basis), AND b) Duties and tasks, AND c) Remuneration (must include provision for payment of overtime), AND d) Modalities on health insurance, AND e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave. d. No child labour is allowed (Exceptions for children working on their families' property requires an Expert Stakeholder opinion) e. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures			regular basis), tasks and payments. All employees have benefits based on social security, pregnancy, maternity/paternity leave, or marital status which has been verified consistent with the request in Labor Law of the People's Republic of China/38/. All employees would provide their age information document, e.g. ID, when signing the labour contract, and the project owner did not and will not employ any child labour. Besides, the employees also have the right to establish labour unions and to carry on labour union activities in accordance with the PRC Labour Union Law and other applicable laws and regulations. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
		6.2 Negative Economic Consequences			
		Does the project cause negative economic consequences during and after project implementation?	No	N/A	Via site inspection and checking the previous validation report/5/, CTI confirmed that the project has positive economic and environmental benefits

					due to the reduced reliance on fossil fuels by utilizing water source, which will contribute to increasing China's energy security, and will also improve local air quality. In addition, the project will create fair job opportunities for local people, which is good for the local economy. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
	7	**Climate and Energy**			
		7.1 Emissions			
		Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	N/A	Via checking the ER sheet/2/, CTI confirmed that the project uses renewable hydro energy to generate electricity displacing fossil fuel dominated electricity generation in CCPG and thus resulting in greenhouse gases emission reductions and provides the affordable and clean Energy in China thus decrease GHG emissions comparing with the baseline scenario. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
		7.2 Energy Supply			

		Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	N/A	Via checking the Power purchase agreement/13/, CTI confirmed that the project activity will reduce dependency on fossil fuel based electricity and create more affordable clean energy by using hydro resources for China. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
	8	**Water**			
		8.1 Impact on Natural Water Patterns/Flows			
		Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	N/A	Via site inspection, CTI confirmed that there is no obvious variation of water quantity because the bundled project is a run of river hydropower plant with no capacity of conditioning which has been verified in the previous validation process/5/. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
		8.2 Erosion and/or Water Body Instability			
		a. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? b. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No	N/A	Via checking the previous validation report, CTI confirmed that during the project construction and operation proess, earthworks are filled in the project site for replanting; rehabilitation of vegetation in the affected places such as construction site and reservoir are conducted right after the completion of the construction work, finally an acceptance meeting with governmental agencies has been held to prove that and the project passed the completion check which has been

					finished in the earlier implementation time of the project. Hence, the project does not cause erosion and/or water body instability or disrupt the natural pattern of erosion and not susceptible to excessive erosion and/or water body instability. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
	9	**Environment, ecology and land use**			
		9.1 Landscape Modification and Soil			
		Does the Project involve the use of land and soil for production of crops or other products?	No	N/A	The project does not involve the use of land and soil for production of crops or other products which is confirmed by site inspection. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
		9.2 - Vulnerability to Natural Disaster			
		Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	N/A	Via checking the previous validation report/5/, it is verified that there is no obvious variation of water quantity because this project is a run of river hydropower plant with no capacity of conditioning. Furthermore, via site interview with project respresentatives, CTI verified that Water and Soil Conservation Plan/14/ has been strictly enforced during and after the construction period to mitigate the impact on local environment. Therefore, the bundled project will not be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence,

					landslides, erosion, flooding, drought or other extreme climatic conditions. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
		Principle 9.3 Genetic Resources			
		Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	No	N/A	Via on-site inspection and based on the expertise to hydro power generation projects, it is verified that the project does not involve any use of GMOs, so it will not have negatively impacted by the use of genetically modified organisms or GMOs. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
		9.4 Release of pollutants			
		Could the Project potentially result in the release of pollutants to the environment?	Potentially	During the construction period, washing wastewater was treated in a sediment tank before discharged to the river and then the impact of waste water on local water body was not significant. During the operational period, oil in the wastewater is absorbed by oil absorption paper and wood residues. The paper and wood residues with oil is burned afterwards to prevent	The project uses hydro resources to generate electricity and the electricity is delivered to grid which utilize clean and renewable energy. As per the previous verification reports/6/ and vis site inspection, CTI confirmed that the waste mainly consists of oil in the wastewater and domestic wastewater and the impacts to fish and organism species and habitats due to the project activity need to be monitored for determine the risk involved and violation to this safeguarding principle.

				potential pollutions. Sanitary sewage is treated in the septic tank by digestion process and reused as fertilizers.	
		9.5 Hazardous and Non-hazardous Waste			
		Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	N/A	Via on-site inspection, it is verified that the project use hydro resources to generate electricity and the electricity is delivered to grid. It is clean and renewable energy, hence it does not involve any hazardous materials resulting from their production, transportation, handling, storage and use in the Project. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
		9.6 - Pesticides & Fertilisers			
		Will the Project involve the application of pesticides and/or fertilisers?	No	N/A	Via on-site inspection, it is verified that the project does not involve any use of pesticides and/or fertilizers. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
		9.7 Harvesting of Forests			
		Will the Project involve the harvesting of forests?	No	N/A	Via on-site inspection, it is verified that the project does not involve any harvesting of forests. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
		9.8 Food			
		Does the Project modify the quantity or nutritional quality of food available such as through crop	No	N/A	Via on-site inspection, it is verified that the project does not involve modification of the quantity or

			regime alteration or export or economic incentives?			nutritional quality of food available. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
			9.9 Animal husbandry			
			Will the Project involve animal husbandry?	No	N/A	Via on-site inspection, it is verified that the project does not involve animal husbandry. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
			9.10 High Conservation Value Areas and Critical Habitats			
			Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	N/A	Via checking the EIA approval/10/ and previsou validation report/5/, CTI confirmed that the project does not located in an area within a high conservation value area or within critical natural habitats. The project activity does not physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified. As such there is no risk involved and therefore the project does not violate this safeguarding principle.
			9.11 Endangered Species			
			Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? AND/OR Does the Project potentially impact	No	N/A	Via checking the EIA approval/10/ and previsou validation report/5/, CTI confirmed that there are no endangered species identified as potentially being present within the Project boundary. In addition, the wind source used in the project will not pose a threat to any species.

	other areas where endangered species may be present through transboundary affects?			As such there is no risk involved and therefore the project does not violate this safeguarding principle.

Assessment that project complies with 'gender sensitive' requirements

The justifications provided for the project complies with 'gender sensitive' requirements are assessed as per four mandatory questions included under Step 1 to 3 in "Gold Standard Gender Equality Guidelines and Requirements" in below table,

Questions	Justification
Question 1: Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?	The project reflects the key gender issues and requirements of Gender Sensitive design and implementation. Firstly, the gender-sensitive approaches have been used in stakeholder consultation on 26/03/2008 and 27/03/2008, and during the Stakeholder feedback round starting from 15/04/2022/16/, this make sure the information of project has been shared equitably with women and men stakeholders. Furthermore, via checking the working agreements/17/ and previous verification reports/6/, it is verified that the project has employed women in the implementation of the project. This is also verified by on-site observation and interview with the women staffs.
Question 2: Explain how the project aligns with existing country policies, strategies and best practices	The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis. Via comparing the working agreements/17/ with the Labor Law of the People's Republic of China/38/, it is verified that female are employed, and the project respects all the rights to the women. This is also verified by on-site observation and interview with the woman staffs.
Question 3: Is an Expert required for the Gender Safeguarding Principles & Requirements?	The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis. Via checking the working agreements/17/. Also the bundled project is applying for crediting period renewal process. Hence, no gender experts are required for the Gender Safeguarding Principles & Requirements.
Question 4: Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	It is verified that the Key Project Information which includes gender guidelines have been introduced to the local stakeholders. All assessment questions related to safeguarding principles, including principle 2 "Gender

		Equality and Women's Rights", have been discussed during the stakeholder consultation meeting. Also the bundled project is applying for crediting period renewal process. Hence, no gender experts are required to engage in the Stakeholder Consultation.
Findings	N/A	
Conclusion	The Safeguarding principles assessment is carried out according to the relevance to the project activity. Project developers discuss any possibilities in Safeguarding Principles of the GS4GG. The validation team considers the Safeguarding principles assessment has been based on the accurate local situation and the corresponding information has been included in the PDD. It is analyzed in the PDD that it would create no risks of relevance to the project activity in all aspects of Safeguarding principles assessment. The validation team also considers that no mitigation measures are required for the project activity.	

D.7. Local stakeholder consultation assessment

Means of validation	This is the design cetification renewal, during the previous certification cycles, the project has been consulting the local stakeholder and detail of consultation process has been described in the related files for 1st and 2nd crediting period which has been confirmed by checking the previous validartion reports/5/. According to the GS4GG Stakeholder Procedure Requirements and Guidelines, Stakeholder Consultation process for 3rd certification cycle has been carried out by PD, the project information is public to local villages by distributed the questionnaires as a method to continuing getting feedback from the stakeholder in April 2022 which has been confirmed by checking the local stakeholder consultation records/16/. Via checking the 45 filled questionnaires/16/, the validation team was able to verify that the questions were successfully delivered with replies colleted. The PD provide the information of participants and all feedbacks to each question with participants' agreement which have been clearly demonstrated in the PDD and verified by checking the local stakeholder consultation records/16/. CTI confirmed that there were no negative comments raised by stakeholders. Thus it is verified that there is no need to change the project design. Furthermore, after the questionnaire survey, for further understanding stakeholders' comments, the project owners also randomly distributed the non-technical project summary to other residents around the project site for seeking additional comments which has been confirmed by site interview with local residents. This 2-month-feedback round is from 18/04/2022 to 18/06/2022. Based on the above assessment, the validation team hereby confirms that the Project fulfills the relevant criteria of the GS4GG Stakeholder Consultation.
Findings	N/A
Conclusion	It is verified that no further comments were received from the local stakeholders regarding to the impact to the sustainability development by the project. Therefore, overall, the PD did not need to alter the continuous implementation of the project activity for 3rd certification cycle.

D.8. Discussion on continuous input / grievance mechanism

Means of validation	For the continuous input / grievance mechanism, PD has listed different methods which have been used in the previous certification cycles which has been verified by checking the previous verification reports/6/. As confirmed through the site inspection and interview with the local officers and residents, CTI verified that the inputs/grievances mechanism has been in place. As per checking the internet/email address which has been provided to local stakeholders, CTI verified that they have access to provide issues or comments through given methods.

Findings	N/A
Conclusion	Validation team could confirm the current arrangement of capturing grievances is adequately implemented and correctly communicated to stakeholders which can be used for continuous 3rd certification cycle.

SECTION E. Internal quality control

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The final validation report was undergone a technical review by a qualified independent reviewer before requesting design certification of the project activity. The technical review was performed by a technical reviewer qualified in accordance with CTI's qualification scheme for GS validation and verification that meets the criteria of GS guidelines for qualification.

SECTION F. Validation opinion

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Shenzhen CTI International Certification Co., Ltd (CTI) has conducted the Design Certification Renew validation of the GS4GG project activity “Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project”. The validation was performed on the basis of rules and requirements defined by GS4GG Principles and Requirements.

The validation is based on the baseline and methodology ACM0002, “Grid-connected electricity generation from renewable sources ” Version 21.0, the SDG Impact Tool, and the final version of PDD. The validation consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up on-site visit and interviews with project participants and local stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report.

In the course of the validation 2 Corrective Action Requests (CARs), 4 Clarification Requests (CLs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology and subsequent background investigation have provided the CTI with sufficient evidence to validate the fulfilment of the latest valid GS4GG requirements.

In detail the conclusions can be summarized as follows:

- the project meets all eligibility criteria set by GS4GG.
- the project does not violate any of safeguarding principles set by GS4GG.
- the baseline scenario is correctly re-defined as per the applied methodology and relate tools;
- the project additionality including on-going financial need is sufficiently justified in the PDD;
- all data and information used for ex-ante calculation of emission reductions is of projected and/or hypothetical nature;
- the monitoring plan of SDG parameters in the validated PDD is transparent and adequate;
- the project does not result in diversion of ODA.
- the project meets the stakeholder consultation requirements.
- the project contribution to SDG is determined.
- one FAR was raised related to the ongoing financial need in the future verification.
- The calculated emission reductions of 86,219 tCO_2e are most likely to be achieved within the 3rd renewable certification cycle from 01/01/2023 to 31/12/2029.

The conclusions of this report show, that the project, as it was described in the PDD, is in line with all criteria applicable for the Design Certification Renew against the GS4GG requirements without any qualifications or limitations.

Therefore, the project is recommended to GS Sustain CERT for the submission of the validation report of Design Certification Renew.

Appendix 1. Abbreviations

Abbreviations	Full texts
BAU	Business-as-usual
BE	Baseline Emission
CAR	Corrective Action Request
CCER	Chinese Certified Emission Reduction
CCPG	Central China Power Grid
CDM	Clean Development Mechanism
CL	Clarification Request
CO_2	Carbon dioxide
CP	Crediting Period
CTI	Shenzhen CTI International Certification Co., Ltd
DNA	Designated National Authority
EB	Executive Board
EIA	Enviromental Impact Assessment
FAR	Forward Action Request
PDR	Feasibility Study Report
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
GS4GG	Gold Standard for the Global Goals
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LSC	Local Stakeholder Consultation
MoV	Means of Validation
MP	Monitoring Plan
ODA	Official Development Assistance
PD	Project Developer
PDD	Project Design Document
PE	Project Emission
PP	Project Participants
PS	Project Standard
QC/QA	Quality control/Quality assurance
SCR	SDG Impact Tool
SD	Sustainable Development
SDG	Sustainable Development Goals
SFR	Stakeholder Feedback Round
tCO_2e	Tonnes of Carbon di oxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
V	Version
VER	Voluntary Emission Reduction
VVB	Validation and Verification Body
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Ms. Guolian WANG

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Validator	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 3: Energy demand	TA 3.1: Energy demand
SS 4: Manufacturing industries	TA 4.1. Cement and lime production
SS 5: Chemical industry	TA 5.1: Chemical industry
	TA 5.2: Caprolactam, nitric and adipic acid
SS 11: Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	TA 11.1: Emissions of fluorinated gases
	TA 11.2: Refrigerant gas production
SS 12: Solvents use	TA 12.1: Chemical industry

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Wu LIN Wu Lin

Technical Competent Manager

Shenzhen, 01/01/2021

Ms. Liu Jia

Satisfies the requirements of the Certification Body of CTI and is hereby appointed as:

Qualification as						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 3: Energy demand	TA 3.1: Energy demand

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Wu Lin Wu Lin

Technical competent manager
Shenzhen, 01/07/2022

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	PD	GS4GG Project Design document of "Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project"	- Version No. 10, dated 29/07/2022 - Version No. 11, dated 25/10/2022 - Version No. 12, dated 21/02/2023	PD
2.	PD	Emission Reduction Calculation spreadsheet of "Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project"	- Version No. 10, dated 29/07/2022 - Version No. 11, dated 25/10/2022	PD
3.	PD	SDG Impact Tool of "Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project"	Version No. 01, dated 29/07/2022	PD
4.	PD	Transition Annex of "Hunan Guanbaodu-Liangjiangkou Small-scale Hydropower Bundle Project"	Version No. 1.0, completed the transition to GS4GG on 29/10/2019	PD
5.	VVBs	Previous Validation reports	Validation reports to 1st and 2nd crediting period	GS website
6.	VVBs	Previous Verification reports	Periodical verification reports in 1st and 2nd crediting period	GS website
7.	The local Administrative Approval Service Bureau	Business License	Business License of project owner Jingzhou Miao & Dong Autonomous County Guanbaodu Hydropower Co., Ltd (project owner of Guanbaodu project) and Tongdao Dong Autonomous County Liangjiangkou Hydropower Station (project owner of Liangjiangkou project) and Climate Bridge (Shanghai) Ltd.	PD
8.	Huaihua City Water Conservancy Bureau, Tongdao Dong Autonomous County Water Conservancy Bureau	Approval of PDR	Approval of PDR of Guanbaodu project issued by Huaihua City Water Conservancy Bureau on 15/07/2005 Approval of PDR of Liangjiangkou project issued by Tongdao Dong Autonomous County Water Conservancy Bureau on 23/07/2006	PD
9.	Huaihua Environmental Protection Research Institute	Environment Impact Assessment	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 and Dong Autonomous County	Approval of EIA	Approval of EIA of Guanbaodu project issued by Jingzhou Miao and Dong Autonomous County	PD

	Environment Protection Bureau, Tongdao Dong Autonomous County Environment Protection Bureau		Environment Protection Bureau on 20/11/2005 Approval of EIA of Liangjiangkou project issued by Tongdao Dong Autonomous County Environment Protection Bureau on 12/07/2006	
11.	Project Owner and manufactures	Equipment purchase contract	Hydro Turbine Generator purchase contract for Guanbaodu Project signed on 08/08/2005 Hydro Turbine Generator purchase contract for Liangjiangkou Project signed on 25/08/2006	PD
12.	Jingzhou Miao and Dong Autonomous County Hydro Management Station (Guanbaodu) And Tongdao Dong Autonomous County Water Conservancy Bureau (Liangjiangkou)	Measuring report of the reservoir	Measurement Report of reservoir area for Guanbaodu project by Jingzhou Miao and Dong Autonomous County Hydro Management Station, dated 25/07/2022 Measurement Report of reservoir area for Liangjiangkou project by Tongdao Dong Autonomous County Water Conservancy Bureau dated 01/06/2022	
13.	Guanbaodu project owner with Hunan Province Huaihua City Jingzhou Power Company, Liangjiangkou project owner with Hunan Province Huaihua City Tongdao Power Company	Power Purchase Agreement	Latest version of the Power Purchase Agreement signed by the Guanbaodu project owner with Hunan Province Huaihua City Jingzhou Power Company. Latest version of the Power Purchase Agreement signed by the Liangjiangkou project owner with Hunan Province Huaihua City Tongdao Power Company.	PD
14.	Huaihua Environmental Protection Research Institute	Water and Soil Conservation Plan	Water and Soil Conservation Plan for both plants	PD
15.	Project Owner	LOG	Operation and management of project logs of two hydro power plants	PD
16.	PP	Local Stakeholder Consultation Records	Local stakeholder consultation process filled 45 questionnaires	PD
17.	Project owner and employees	Working agreements	Working agreements signed with employees for implementation of this project	PD
18.	VVB	Photos	Photo taken by validation team during on-site inspection of project site, main equipment and project	VVB

			implementation, monitoring equipment, etc.	
19.	Ministry of Ecology and Environment of the People's Republic of China	Baseline emission factor of China	2019 China regional power grid carbon dioxide baseline emission factor OM calculation instructions http://www.mee.gov.cn/ywgz/ydqhbh/wsqtkz/202012/t20201229_815386.shtml	Public Website
20.	UNFCCC	CDM Approved Methodology ACM0002	"ACM0002 Grid-connected electricity generation from renewable sources " (Version 21.0)	UNFCCC website
21.	UNFCCC	Methodological tool	Tool to calculate the emission factor for an electricity system (Version 07.0)	UNFCCC website
22.	UNFCCC	Methodological tool	Assessment of the validity of the original current baseline and update of the baseline at the renewal of the crediting period (version 03.0.1)	UNFCCC
23.	GS	GS4GG PDD template	Gold Standard for the Global Goals Key Project Information & Project Design Document (PDD) Template, version 1.2, 14/10/2020	GS Website
24.	GS	TGuide	TGuide-PreReview_V1.2-Project-Design-Document)	GS Website
25.	GS	Gold Standard for the Global Goals Principles and Requirements	Version 1.2	GS Website
26.	GS	Gold Standard for the Global Goals Safeguarding Principles & Requirements	Version 1.2	GS Website
27.	GS	Gold Standard for the Global Goals Renewable Energy Activity Requirements	Version 1.4	GS Website
28.	GS	Gold Standard for the Global Goals Stakeholder Consultation and Engagement Requirements	Version 1.2	GS Website
29.	GS	GS4GG GHG Emissions Reduction & Sequestration Product Requirements	Version 2.1	GS Website
30.	ILO	ILO conventions	https://www.ilo.org/global/lang--en/index.htm	Public Website
31.	Gold Standard Organization	Gold Standard	http://www.goldstandard.org/	Website
32.	UNFCCC	UNFCCC	http://cdm.unfccc.int	Website
33.	VCS	VCS	http://www.v-c-s.org/	Website
34.	IREC	IREC	https://www.irecstandard.org/	Website
35.	China CER	CCER	http://cdm.ccchina.org.cn/	Website
36.	Ministry of Ecology and Environment of China	China cap & trade scheme	http://www.mee.gov.cn/xxgk2018/xxgk/xxgk02/202101/t20210105_816131.html	Public Website
37.	Ministry of Ecology and Environment of China	Enforced company list	http://mee.gov.cn/xxgk2018/xxgk/xxgk03/202012/W020201230736907682380.pdf	Public Website

38.	National Government	Laws and regulations	Laws and regulations related to renewable energy and hydro Power Renewable Energy Law of the People's Republic of China Chinese Labour Law, Relevant regulations while China has ratified two core UN human rights treaties, including the UN International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR) Women's Rights Protection Law	Public Website
39.	State Institution	National Enterprise Credit Information Publicity System	http://www.gsxt.gov.cn/	Public Website
40.	China DNA	Ministry of Ecology and Environment	https://www.mee.gov.cn/	Public Website
41.	Project owner	2021 financial statement	2021 financial statement for Guanbaodu Project 2021 financial statement for Liangjiangkou Project	Project owner

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

Table 1. FAR from preliminary review

FAR ID	N/A	**Section No.**	-	**Date : -**
Description of FAR				
Project developer response				**Date :**
Documentation provided by project developer				
VVB assessment				**Date:**

Table 2. CL from this validation

CL ID	01	**Section no.**	A.1.1	**Date : 23/08/2022**
Description of CL				
For section A.1.1, how the project meets the eligibility criteria of the section 2 and 3 of GS4GG Renewable Energy Activity Requirements (Version 1.4) is not clarified.				
Project developer response				**Date :** 25/10/2022
The clarification about the eligibility criteria of the section 2 and 3 of GS4GG Renewable Energy Activity Requirements (Version 1.4) has been added in the section A.1.1 of the updated PDD.				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				**Date:** 27/10/2022
The revised PDD is checked, it is verified that the demonstration of the project meets the eligibility criteria of the section 2 and 3 of GS4GG Renewable Energy Activity Requirements (Version 1.4) have been provided by PD and assessed by CTI accordingly. Refer to section D.3 of this report for detail assessment of each condition. CL 01 is closed.				

CL ID	02	**Section no.**	A.1.1	**Date : 23/08/2022**
Description of CL				
For section A.1.1, how the project meets section 2 of GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1) is not clarified.				
Project developer response				**Date :** 25/10/2022
The clarification about the eligibility criteria of section 2 of GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1) has been added in the section A.1.1 of the updated PDD.				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				**Date:** 27/10/2022
The revised PDD is checked, it is verified that the demonstration of the project meets the eligibility criteria of the section 2 of GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.1) have been provided by PD and assessed by CTI accordingly. Refer to section D.3 of this report for detail assessment of each condition. CL 02 is closed.				

CL ID	03	**Section no.**	B.2	**Date: 23/08/2022**
Description of CL				
The applicability cretiria is not completed, the scope of the methodology is not clarified.				
Project developer response				**Date:** 25/10/2022
The applicability criteria and the scope of the methodology have been supplemented in the section B.2 of the updated PDD.				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				**Date:** 27/10/2022

The revised PDD is checked, it is verified that the applicability cretiria have been provided completely. Refer to section section D.4.2 of this report for detail assessment of each condition. CL 03 is closed.

CL ID	04	**Section no.**	B.5.2	**Date: 23/08/2022**
Description of CL				
The justification of ongoing financial need for the design certification renew process is not clarified as per the para 4.1.52 of the Gold Standard for the Global Goals Principles and Requirements (version 1.2).				
Project developer response				**Date:** 25/10/2022
The justification of ongoing financial need for the design certification renewal has been supplemented in section B.5.2 of the updated PDD.				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				**Date:** 27/10/2022
The revised PDD is checked, CTI confirmed that the ongoing financial need for the design certification renew process has been clarified according to the para 4.1.52 of the Gold Standard for the Global Goals Principles and Requirements (version 1.2)/25/. Refer to section D.4.5 of this report for detail assessment. CL 04 is closed.				

Table 3. CAR from this validation

CAR ID	01	**Section no.**	B.2	**Date: 23/08/2022**
Description of CAR				
For justify the applicability of the Tool to calculate the emission factor for an electricity system, 1. The justification for the 1st condition is not relevant. Revision is requested. 2. The second condition from the tool is missing.				
Project developer response				**Date:** 25/10/2022
1. The justification has been revised in the updated PDD. 2. The second condition has been added in the updated PDD.				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				**Date:** 27/10/2022
1. The revised PDD is checked, it is confirmed that the related information has been added. 2. The revised PDD is checked, it is confirmed that the related information has been added. Refer to section section D.4.2 of this report for detail assessment of each condition. CAR 01 is closed.				

CAR ID	02	**Section no.**	B.4	**Date: 23/08/2022**
Description of CAR				
For the Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, in the step 1.1, PD states that the current baseline still complies with all relevant mandatory national and sectoral policies, however, the relevant mandatory national and sectoral policies are not provided accordingly.				
Project developer response				**Date:** 25/10/2022
In China, the Renewable Energy Law has been put into effect since 2006, which encourages the development of renewable energy projects. However, although renewable energy projects have been developed rapidly in recently years, grid connected power generation in China is still dominated by fossil-fuel power plants. There are no new relevant national and/or sectoral policies and/or circumstances in the electricity generation sector applicable to the project activity, in comparison to the time of the submission of the project activity for validation, which would affect the compliance of the current baseline scenario. Hence in the absence of the project activity electricity would still have been generated in the existing fossil fuel power plants or by the addition of new fossil fuel power plants connected to the CCPG. The same has been added in the updated PDD.				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				**Date:** 27/10/2022

The revised PDD is checked, CTI confirmed that all the relevant mandatory national and sectoral policies have been provided. The validation team has independently reviewed the host country law and legislation related to the renewable energy, i.e. Renewable Energy Law/38/, which has been put into effect since 2016 and still valid now which has been confirmed based on the local expertise of VVB. And based on the national law, CTI confirmed that the government still encourages the development of renewable energy projects although renewable energy projects have been developed rapidly in recently years, grid connected power generation in China is still dominated by fossil-fuel power plants. On the basis of this analysis the validation team confirms that the baseline is still in compliance with the currently applicable national legislation and other national and/or sectoral policies. CAR 02 is closed.

Table 4. FAR from this validation

FAR ID	-	**Section No.**	-	**Date :** -
Description of FAR				
Project developer response				**Date :** -
Documentation provided by project developer				
VVB assessment				**Date:** -