VCS VERIFICATION REPORT
CHUANWEI GROUP 24 MW WASTE GAS BASED CAPTIVE POWER PLANT
(VCS PROJECT ID: 12)

DOCUMENT PREPARED BY

SHENZHEN CTI INTERNATIONAL CERTIFICATION CO., LTD

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Summary:

Shenzhen CTI International Certification Co., Ltd (CTI) has performed the verification of the emission reductions reported for the project activity "Chuanwei Group 24 MW Waste Gas Based Captive Power Plant" (VCS Project ID: 12) for the monitoring period 26/09/2011 to 17/07/2016, to review and determine the monitored reductions in GHG emissions that have occurred as a result of the project activity. These emission reductions are claimed as Verified Carbon Units (VCU) under the Verified Carbon Standard (VCS) version 4.0.

The verification was performed on the basis of VCS Programme Guide version 4.0 and VCS Standard version 4.0 for the VCS projects, as well as criteria given to provide for consistent project operations, monitoring and reporting. The verification was conducted by means of document review, follow-up interviews and site inspections, and the resolution of outstanding issues. The verification team identified no CAR, CL or FAR in this monitoring period.

In CTI's opinion, the GHG emission reductions reported for the project in the monitoring report (version 02 dated 08/10/2020) are fairly stated. The GHG emission reductions were calculated correctly on the basis of approved methodology ACM0002 "Consolidated methodology for grid-connected electricity generation from renewable sources" (Version 06), ACM0004 "Consolidated

baseline methodology for waste gas and/or heat and/or pressure for power generation" (version 02), and the revised monitoring plan approved on 01/07/2010 by CDM EB.

CTI does not assume any responsibility towards the issuance and utilization of the VCUs hereby verified and certified. Request for issuance of VCUs shall be made by the project proponent to an approved VCS Program Registry based on the requirements set out under the most recent version of the VCS Program Guidelines clause on VCS Registration.

The verification of reported emission reductions is based on the information made available to CTI and the engagement conditions detailed in this report. CTI cannot be held liable by any party for decisions made or not made based on this report.

Hence, CTI is able to certify that the emission reductions from the "Chuanwei Group 24 MW Waste Gas Based Captive Power Plant" during the period amount to 925,415 tCO_2e.

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1 INTRODUCTION

Beijing Ruifang Information Technology Co., Ltd has commissioned Shenzhen CTI International Certification Co., Ltd (CTI) to carry out the verification and certification of emission reductions reported for the "Chuanwei Group 24 MW Waste Gas Based Captive Power Plant" (the project) for the period 26/09/2011 to 17/07/2016. This report contains the findings from the verification and includes a verification statement for the verified carbon units.

1.1 Objective

Verification is the periodic independent review and ex-post determination by an accredited verification body of the monitored reductions in GHG emissions that have occurred as a result of the registered VCS project activity during a defined verification period.

A verification statement is the written assurance by a verification body that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and provide a verification statement of emission reductions reported for the "Chuanwei Group 24 MW Waste Gas Based Captive Power Plant" for the period 26/09/2011 to 17/07/2016.

1.2 Scope and Criteria

The scope of the verification is:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the revised monitoring plan approved by CDM EB;
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emissions reduction data is free from material misstatement;
- To verify that reported GHG emissions data is sufficiently supported by evidence.

The criteria of the verification are:

- VCS Program Guide (version 4.0) /17/
- VCS Standard (version 4.0) /22/ and other relevant requirements defined by VERRA;
- The approved methodology ACM0002 (Version 06) /29/ applied by the project.
- The approved methodology ACM0004 (Version 02) /30/ applied by the project.

The verification shall ensure that reported emission reductions are complete and accurate in order to be verified.

1.3 Level of Assurance

The verification report expresses a conclusion with a reasonable level of assurance about whether the reported GHG emissions reduction data is free from material misstatement. CTI applied a materiality threshold of 5% with respect to omission or misstatements concerning reported quantities as per VCS standard.

1.4 Summary Description of the Project

Sectoral Scope and Project Type

According to the VCS Program Guide (version 4.0) /17/, the project is applicable under the following activity categories:

- Sectoral Scope: 1. Energy (Renewable/non-renewable).

According to Annex A of the Kyoto Protocol, the project is applicable under the Sectoral Scope 1: Energy Industries (renewable/ non-renewable sources).

Project Background

Project title:	Chuanwei Group 24 MW Waste Gas Based Captive Power Plant
Project proponent:	Neijiang Xingming Energy Co., Ltd. (China)
Project location:	Lianjie Town, Weiyuan County, Neijiang City of Sichuan Province, P.R.China
VCS Project ID:	12
UNFCCC Ref. ID:	1470
Applied methodology:	ACM0002 (Version 06), ACM0004 (Version 02)
VCS project crediting period:	18/07/2006 to 17/07/2016 (the first VCS crediting period)
VCU verification period:	26/09/2011 to 17/07/2016

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification was performed through means of the following three phases in accordance with the requirement of the registered CDM PDD, the revised monitoring plan approved by CDM EB, the applied methodology, and the VCS Standard (version 4.0) and other relevant VCS requirements:

- A desk review of the monitoring report and all support documents;
- Follow-up interviews with project stakeholders and site inspection;
- The resolution of outstanding issues and the issuance of the verification report and statement.

The following sections outline each step in more detail.

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. These include:

- The emission reduction calculations and the relevant data records;
- The calibration and maintenance records for the monitoring instruments;

The management systems to support the project operation and monitoring

2.2 Document Review

Based on the requirements of competency, experience and qualified sectoral scopes, CTI appointed a verification team in accordance with CTI's internal procedures.

Function	Name	Technical competence	Task Performance*
Team Leader	Zhang Lei	Scopes: 1, 4, 13	☒ DR ☒ SV ☒ RP ☐ TR
Technical Reviewer	Lin Wu	Scopes: 1, 2, 3, 4, 5, 10, 11, 12, 13	☒ DR ☐ SV ☐ RP ☒ TR

*DR=Document review; SV=Site visit; RP=Reporting; TR=Technical review

In addition to the VER/VCU monitoring report /1/ and emission reduction calculation spreadsheet /2/, the following documents also were assessed as a part of the verification audit:

- Regidtered CDM PDD /3/;

- CDM Validation Report /14/;

- revised MP approved by CDM EB /10/

- the VER/VCU monitoring report and corresponding Verification Report of the previous monitoring periods /15/;

- The CDM monitoring reports and the corresponding verification reports of the previous monitoring periods /18/;

- Baseline and monitoring methodology ACM0002 applied by the project /29/;

- Relevant decisions, clarifications and guidance from the VERRA /22/-/28/; and

- Other information and references relevant to the project activity.

During the desk review, CTI has applied standard auditing techniques to assess the quality of information provided. The following activities were performed:

- A review of the data and information presented to verify their completeness;
- A review of the revised monitoring plan approved by CDM EB and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures; and

An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

2.3 Interviews

During 27/09/2020 - 28/09/2020, CTI visited Neijiang Xingming Energy Co., Ltd. performed on-site assessment. The key personnel of the project were interviewed or assisted the verification team /31/. Main topics of the interview cover implementation of the project construction, applicability of selected methodology, implementation of project monitoring, emission reduction calculation, etc.

The key personnel interviewed /31/ are summarized in the table below:

Interviewed personnel	Role	Organization	Subject
Mr. Wang Zhigang	Director of Equipment Energy Department	Neijiang Xingming Energy Co., Ltd.	Operation of the project activity; Implementation of the monitor plan of the project activity; Data collection and data achievement;

Mr. Shan Zhuo	Engineer of Equipment Energy Department	Neijiang Xingming Energy Co., Ltd.	Calibration of meters and equipment maintenance; Data collection and ER calculation.
Mr. Huang Yixin	Department chief of Equipment Energy Department	Neijiang Xingming Energy Co., Ltd.	
Mr. Liao Qiang	Staff	Weiyuan County Environmental Protection Bureau	Enviromnental impact of the project activity.
Mr. Xu Mei	Director	Weiyuan County Development and Reform Commission	
Mr.Wu Li	Villager	/	
Mr. Zhang Ge	Villager	/	
Mr. Zheng Zhaoning	Consult Manager	Goldchina Consultancy International Co., Ltd.	

2.4 Site Inspections

The verification team performed the on-site verification (Lianjie Town, Weiyuan County, Neijiang City of Sichuan Province, P.R.China) on 27/09/2020 - 28/09/2020. The interviewed personnel and objective are listed in above table. During the on-site assessment, CTI has applied standard auditing techniques to assess the quality of information provided. The following aspects of the project activity have been verified:

- An assessment of the implementation and operation of the registered project activity is as per the CDM PDD for the project activity and the revised monitoring plan approved by CDM EB;
- A review of information flows for generating, aggregating and reporting the monitoring parameters; and
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the revised monitoring plan approved by CDM EB in the CDM PDD and the revised monitoring plan approved by CDM EB;
- A cross-check between information provided in the monitoring report and data from other sources such as plant logbooks and electricity sale receipts;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the CDM PDD, the revised monitoring plan approved by CDM EB and the selected methodology;
- A review of calculations and assumptions made in determining the GHG data and emission reductions; and

- An identification that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The data presented in the monitoring report were assessed by review of the detailed project documentation and production records, as well as by interviews with personnel from the project developer Neijiang Xingming Energy Co., Ltd. and observation of collection of measurements, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. This has enabled the verification team to assess the accuracy and completeness of reported monitoring results, to verify the correct application of the approved monitoring methodology and the determination of the emission reductions.

In addition all parameters required by the monitoring methodology ACM0002 (Version 06), ACM0004 (Version 02), and the management system were assessed during the site visit.

2.5 Resolution of Findings

A corrective action request (CAR) shall be raised, where:

i. Non-conformities with the revised monitoring plan approved by CDM EB or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;

ii. Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;

iii. Issues identified in a FAR during validation to be verified during verification have not been resolved by the project proponents.

A clarification request (CL) shall be raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

The verification team identified no CAR or CL in this monitoring period.

2.5.1 Forward Action Requests

A forward action request (FAR) is issued for actions if the monitoring and reporting require attention and/or adjustment for the next monitoring period.

CTI confirmed that there was no FAR identified in previous verification /15/, and no FAR was raised during this verification.

2.6 Eligibility for Validation Activities

The project activity is registered as CDM project activity under the UNFCCC with the Registration Ref. No. 1470 and with the CDM crediting period of the project starting on 10/09/2008. The project was validated by DET NORSKE VERITAS (DNV CERTIFICATION) on 20/08/2008 against CDM requirements and VCS Version 2007.1 during the validation/14/. The emission reductions from 01/01/2007 to 09/09/2008 prior to the CDM crediting period were claimed as Voluntary Carbon Units (VCU) under the

Voluntary Carbon Standard (VCS 2007.1). There is a deviation for the crediting period of the Project (see "3 Validation Findings" for details).

The proposed monitoring period 26/09/2011 to 17/07/2016 is 2nd verification for VCU issuance, and CTI just undertook verification activites for the project according to the VCS Program Guide. This section is thus not applicable.

3 VALIDATION FINDINGS

The project activity is registered as CDM project activity under the UNFCCC with the Registration Ref. No. 1470 and with the CDM crediting period of the project starting on 10/09/2008. The project was validated by DET NORSKE VERITAS (DNV CERTIFICATION) on 20/08/2008 against CDM requirements during the validation/14/. The emission reductions from 01/01/2007 to 09/09/2008 prior to the CDM crediting period were claimed as Voluntary Carbon Units (VCU) under the Voluntary Carbon Standard (VCS 2007.1).

Total GHG emission reductions of 170,769 tCO_2 generated from 10/09/2008 - 31/10/2009 (starting and ending days included) by the project has been issued as CER under CDM program. And total GHG emission reductions of 282,971 tCO_2 generated from 01/11/2009 - 25/09/2011 (starting and ending days included) by the project has been issued as CER under CDM program.

By checking the registered CDM PDD and site visit interview with project owner, it is confirmed that the project started operation on 18/07/2006 which is the project start date according to the requirement of VCS. A deviation was identified for the crediting period of the Project. The project is registered under VCS Version 2007.1 and completed validation before 19/03/2020. As per VCS requirement, it remains eligible to apply the crediting period requirements under VCS 2007.1 which shall be a maximum of ten years and may be renewed at most twice. Therefore, the first renewable crediting period of the Project is updated from 18/07/2006 - 09/09/2008 to 18/07/2006 - 17/07/2016, which lasts for 10 years. .

3.1 Participation under Other GHG Programs

The project activity is registered as CDM project activity under the UNFCCC with the Registration Ref. No. 1470 and with the CDM crediting period of the project starting on 10/09/2008. The project was validated by DET NORSKE VERITAS (DNV CERTIFICATION) on 20/08/2008 against CDM requirements during the validation/14/. By check the UNFCCC website (https://cdm.unfccc.int/Projects/DB/DNV-CUK1197537544.71/view), it is confirmed that total GHG emission reductions generated from 10/09/2008 - 31/10/2009 and 01/11/2009 - 25/09/2011 (starting and ending days included) by the project has been issued as CER under CDM program.

CTI only performed verification activities on the proposed monitoring period for the project according to the VCS Program Guide.

3.2 Methodology Deviations

The validation process /14/ has assessed all factors and issues that constitute the basis for emission reductions from the project according to the applicable CDM methodology ACM0002 (Version 06) /29/ and ACM0004 (Version 02) /30/. There was not any methodology deviation applied to this project. Details refer to section 4.1.

3.3 Project Description Deviations

There were no project description deviations identified by CTI to this monitoring period. The verification team assessed through visual inspection and document review that all physical features of the proposed project activity including data monitoring, reporting and collecting systems have been implemented in accordance with the revised monitoring plan approved on 01/07/2010 by CDM EB. Details refer to section 4.1.

3.4 Grouped Project

The project was not a grouped project; hence this clause is not applicable.

4 VERIFICATION FINDINGS

This section summarises the findings from the verification of the emission reductions reported for the "Chuanwei Group 24 MW Waste Gas Based Captive Power Plant" for the period 26/09/2011 to 17/07/2016.

4.1 Project Implementation Status

Project Implementation in accordance with the registered project design document

The project utilize waste gas for power generation, which is located in Lianjie Town, Weiyuan County, Neijiang City of Sichuan Province, P.R.China. The project implements two BFG boilers, two sets of 12MW condensing turbines and generators, with the total capacity of 24MW. The actual implementation of the project during this verification period was verified in terms of the equipment purchase contract/15/and name plate/16/ capacities of each turbine and monitoring equipment.

The models of the equipments are listed as below:

- BFG boilers with the model type CQ-75/3.82-Q, manufactured by Sichuan Boiler Works /16/;
- 12MW condensing turbines with the model type N12-3.43/435, manufactured by Dongfang Turbine Co., Ltd.; and Generators with the model type QF1-12-2A, provided by Sichuan Dongfeng Electrical Machine Co., Ltd. /16/.

The details of the wind turbines with respect to installation and capacity have been verified to be consistent with description indicated in the registered CDM PDD. The project started construction on 30/06/2004, and starts commercial operation on 18/07/2006 /14/. The purpose of the project activity is to utilize the blast furnace gas from Sichuan Provincial Chuanwei Group company that would be flared in the absence of the Project to generate electricity, displacing part of electricity supplied by fossil fuel-fired power plants of the Central China Grid..

The project start date was identified as 18/07/2006 when the project started to operate and began generating GHG emission reductions. The GHG emission reductions from 01/01/2007 to 09/09/2008 prior to the CDM crediting period has been claimed as Voluntary Carbon Units (VCU) under the Voluntary Carbon Standard (VCS 2007.1). GHG emission reductions generated from 10/09/2008 - 31/10/2009 and 01/11/2009 - 25/09/2011 (starting and ending days included) by the project has been issued as CER under CDM program.

The project is registered under VCS Version 2007.1 and completed validation by DET NORSKE VERITAS (DNV CERTIFICATION) on 20/08/2008, which was before 19/03/2020. As per VCS requirement, it remains eligible to apply the crediting period requirements under VCS 2007.1 which shall be a maximum of ten years and may be renewed at most twice. Therefore, the first renewable crediting period of the Project is updated from 18/07/2006 - 09/09/2008 to 18/07/2006 - 17/07/2016, which lasts for 10 years. The selected monitoring period 26/09/2011 to 17/07/2016 is the 2nd VCS

monitoring period of the project, which is within the crediting period 18/07/2006 to 17/07/2016.

All the monitoring system in operation period is consistent with the description in the registered CDM PDD and the revised monitoring plan approved by CDM EB. The control system at the power plant is automated and assures continuous operation, including monitoring on malfunction of equipment. By checking the daily operation and maintenance records /6/, CTI can confirm that no serious malfunction happened and the plant was under a normal operation as expected in this monitoring period.

On-site training for the related procedures including monitoring, recording and reporting was verified to be in place /5/ and their implementation was confirmed by interview with the key operators /31/ and observing the operation.

As part of the site visit, CTI confirms that the project implementation is in accordance with the project description contained in the registered CDM PDD (version 06 dated 05/08/2008) and the revised monitoring plan approved by CDM EB. The verification team confirmed through visual inspection and document review that all physical features of the proposed project activity including data collection systems and storage systems have been implemented in accordance with the registered CDM PDD (version 06 dated 05/08/2008) and the revised monitoring plan approved by CDM EB.

Compliance of monitoring plan with monitoring methodology

CTI is able to confirm that the revised monitoring plan approved by CDM EB in the registered CDM PDD (version 06 dated 05/08/2008) is in accordance with the approved methodology applied by the project activity, i.e. ACM0002 (Version 06) and ACM0004 (Version 02).

Compliance of monitoring with the monitoring plan

The monitoring has been carried out in accordance with the revised monitoring plan approved by CDM EB. CTI confirms that all parameters stated in the revised monitoring plan approved by CDM EB are monitored and reported appropriately. All parameters required to be monitored by the revised monitoring plan approved by CDM EB as per the monitoring methodology ACM0002 (Version 06), ACM0004 (Version 02) and the management system were assessed during the site visit. The monitoring report lists each parameter required by the revised monitoring plan approved by CDM EB and the information flow (i.e. from data generation, aggregation, recording, calculation and reporting) for these parameters is provided. The information flow for the each parameter in further verified in the following sections.

Parameters monitored

According to the the revised monitoring plan approved by CDM EB, 7 parameters needs to be monitored for the project activity.

Net electricity supply by the Project in year y (EG_y)

The net electricity supply by the Project in year y was calculated by the difference between the electricity generation by the Project in year y (EG_{gen}) and the auxiliary electricity consumption by the Project in year y (EG_{AUX}) as:

$EG_y = EG_{gen} - EG_{AUX}$

The verification team confirmed that the meters have been installed in accordance with the revised monitoring plan approved by CDM EB. Neijiang Xingming Energy Co., Ltd. Belongs to Chuanwei Group Company. The electricity generated is for captive use, and transacted within Chuanwei Group Company.

- **For EG_{gen}**

The electric meter M501 is installed at the outlet of the generator A to monitor the electricity generated by generator A. The electric meter M581 is installed at the outlet of the generator B to monitor the electricity generated by generator B.

The readings of the meters are recorded hourly by the DCS automatically, and daily recorded by PP manually. The cut off time of the electricity generation by the Project (EG_{gen}) is 24:00 on the 25th of each month normally (the cut-off date might be adjusted in June and December). The Monthly Reading Records (MRRs) /7/ were generated manually every month by PP and confirmed by Sichuan Provincial Chuanwei Group Company /8/. The data of electronic reading records of DCS have been crosschecked with the MRRs. The smaller values for electricity generation are used to calculate baseline emissions, which is conservative.

- **For EG_{AUX}**

The electric meter M502 and M582 is installed at the switch cabinet in the project plant to monitor auxiliary electricity consumed by the Unit A and Unit B respectively.

The readings of the meters are recorded hourly by the DCS automatically, and daily recorded by PP manually. The cut off time of the auxiliary electricity consumed by the project (EG_{gen}) is 24:00 on the 25th of each month normally (the cut-off date might be adjusted in June and December). The Monthly Reading Records (MRRs) /7/ were generated every month manually by PP and confirmed by Sichuan Provincial Chuanwei Group Company /8/. The data of electronic reading records of DCS have been crosschecked with the MRRs. The greater values for electricity consumed are used to calculate baseline emissions, which is conservative.

Volume of auxiliary fuel natural gas ($Q_{natural\ gas}$)

The parameter was continuously monitored by the gas flow meter G0388 and G0892 installed at the intake pipe of Unit A and Unit B respectively, and was monthly recorded by PP.

The cut off time of the monthly volume of the auxiliary fuel natural gas ($Q_{natural\ gas}$) is 24:00 on the 25th of each month normally (the cut-off date might be adjusted in June and December). The monitored data recorded by PP is cross-checked with Natural Gas Transaction Notes /9/ issued by Sichuan Provincial Chuanwei Group Company. The conservative value is used to calculate emission reductions.

Net calorific value per volume unit of auxiliary fuel natural gas ($NCV_{natural\ gas}$)

The NCV of the natural gas is measured at least once a month by the calorific value meter following the standard operation procedure and the monthly average NCV has been calculated, and crosschecked with the latest national data, which was from China Energy Statistical Yearbook 2018. The maximum

value among the measured NCV values and the national data was applied for project emission calculation, which is conservative.

Carbon emission factor of the auxiliary fuel natural gas ($EF_{natural\ gas}$)

The value of this parameter was 15.3tC/TJ, which was sourced from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, and was consistent with the result calculated through equation provided in ACM0004 Version 02.

Oxidation factor of the auxiliary fuel natural gas ($OXID_{natural\ gas}$)

The value is 100%, which was sourced from 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

Parameters determined ex-ante

All the parameters listed in the registered CDM PDD are used to calculate emission factor which is determined ex-ant according to the applied methodology. $EF_{grid,CM,y}$ was fixed during the crediting period. The value of the parameter for $EF_{grid,CM,y}$ is 0.97505 tCO_2e which was calculated according to the procedure outlined in B.6 of the registered CDM PDD.

As described above, the meters have been installed in accordance with the revised monitoring plan approved by CDM EB. CTI has on-site checked the location of the meters against the diagram of monitoring system and found them to be consistent. The data reported in the monitoring report and ERs calculation spreadsheet has been verified by the verification team. Supporting references and data required to determine the monitoring parameters of the project is found to be complete and transparent.

Monitoring equipment and calibration

The meters have been calibrated periodically as per the relevant industrial standard by the qualified third party to ensure the monitoring equipments' accuracy and in good conditions. The relevant information of meters' calibration is listed as below.

Meter	Serial Number	Type	Accuracy Class	Calibration Frequency	Calibration Date	Validity	Calibration Entity
M501	200308260Q0092	DSSD331	1.0%	Annually	19/01/2011	18/01/2012	Sichuan Chuanwei Group Co., Ltd. /11//12/
					02/11/2011	01/11/2012	
					29/10/2012	28/10/2013	
					26/10/2013	25/10/2014	
					23/10/2014	22/10/2015	
					20/10/2015	19/10/2016	
M581	11130913	DSSD99A1	1.0%	Annually	25/01/2011	24/01/2012	
					18/10/2011	17/10/2012	
					12/10/2012	11/10/2013	
					21/06/2013	20/06/2014	
					27/03/2014	26/03/2015	
					18/03/2015	17/03/2016	
					11/03/2016	10/03/2017	

M502	200308260Q00089	DSSD331	1.0%	Annually	19/01/2011	18/01/2012	
					02/11/2011	01/11/2012	
					29/10/2012	28/10/2013	
					26/10/2013	25/10/2014	
					23/10/2014	22/10/2015	
					15/10/2015	14/10/2016	
					13/10/2016	12/10/2017	
M582	11238312	DSSD99A1	1.0%	Annually	25/01/2011	24/01/2012	
					18/10/2011	17/10/2012	
					12/10/2012	11/10/2013	
					21/06/2013	20/06/2014	
					27/03/2014	26/03/2015	
					18/03/2015	17/03/2016	
					15/03/2016	14/03/2017	
G0388	0388	LWQZ-III-10012	1.5	At least every 2 years	09/01/2011	08/01/2012	Chongqing Baoyuansen Instrument Manufacturing Co., Ltd. /20//21/
					06/01/2012	05/01/2013	
					04/01/2013	03/01/2014	
					28/12/2013	27/12/2014	
					26/12/2014	25/12/2015	
					10/12/2015	09/12/2016	
					08/12/2016	07/12/2017	
G0892	0892	LWQZ-III-100-TZ-1.6/0.6-0/40-1	1.5	At least every 2 years	12/10/2010	11/10/2011	
					08/10/2011	07/10/2012	
					29/09/2012	28/09/2013	
					26/09/2013	25/09/2014	
					22/09/2014	21/09/2015	
					18/09/2015	17/09/2016	
calorific value meter	85134	Smart 2002	0.8%	Every time when NCV of natural gas was measured	The calibration was carried out by PP as per the national standard, which satisfied with the revised MP approved by EB.		/

By checking the nameplate of the electricity meter M581, it is found that the accuracy was 0.5%, but as per the calibration report, the accuracy of this meter was 1.0%. According to the revised monitoring plan approved by CDM EB, calibration of meters & metering should be implemented according to the supply agreement of high voltage electricity of the Project at least once a year. And the accuracy of electricity meter should be 0.5% for electricity generation and 1.0% for electricity supply and auxiliary power consumption. If the meters in compliance with the national standard (DL/T 448-2016) but with lower accuracy (1.0%) are used, the quantity of electricity generation should be deducted by the accuracy for the conservative purpose (Corrected value=measured value×(1-1.0%)).

Calibration records and accreditation certificates /12/ have been verified by the verification team. CTI can confirm that the accuracy of the meters (except M581 and M501) is in line with the revised monitoring plan approved by CDM EB and relevant industry standard. By checking the industrial metering configuration standard “Technical Administrative Code of Electric Energy Metering (DL/T 448-2016)” /13/, CTI can confirm that the accuracy level of all meters meet the requirement stipulated in this standard.

In the revised monitoring plan approved by CDM EB, it stated that the meters will be calibrated and checked periodically for accuracy. By checking the calibration reports of electricity meters, CTI found

the calibration frequency of these meters is annual, which is in line with the national standard "Technical Administrative Code of Electric Energy Metering (DL/T 448-2016)" /13/. By checking the calibration reports of gas flow meters, CTI found the calibration frequency of these meters is at least every two years, which is in line with the national standard "The Flow Meter Calibration Procedures (JJG198-1994)" /19/. CTI can also confirm that all the meters' calibration frequency is in line with the revised monitoring plan approved by CDM EB and relevant industry standard, and the calibrations of meters are verified to be valid for the whole reporting period.

Data management and control

Neijiang Xingming Energy Co., Ltd. is responsible for operation and routine maintenance of the project activity. The quality assurance and quality control procedures have been addressed in the VER project management and monitoring manual /4/, including the organization structure with the responsibilities, personnel competencies, monitoring procedures and monitoring management. By interview with the staff /31/ and check records /4/-/6/ during on-site visit, it can be confirmed that the monitoring management system is implemented following the project management and monitoring manual.

All monitoring devices have been calibrated and maintained periodically to ensure the accuracy of measurement. Calibration records of instruments used in measurements were made available during the verification visit and found to be valid for the entire period of the verification. Competence and training records of in-plant personnel engaged in measurement of plant parameters were presented during verification and found to be in order.

The emission reduction resulted from the project during this monitoring period would apply for VCUs. There are no other forms of environmental credits applied or issued for the project activity. The project has been participated under CDM programs since validation. Total GHG emission reductions of 170,769 tCO_2 generated from 10/09/2008 - 31/10/2009 (starting and ending days included) by the project has been issued as CER under CDM program. And total GHG emission reductions of 282,971 tCO_2 generated from 01/11/2009 - 25/09/2011 (starting and ending days included) by the project has been issued as CER under CDM program.

The project would contribute to sustainable development in as below:

- reducing greenhouse gas emissions compared to a business-as-usual scenario;
- stimulating and accelerating the technology development of integrated resource utilization technologies and energy saving in steel industry.
- reducing the emission of other pollutants resulting from the power generation industry in China, compared to a business-as-usual scenario;
- creating employment opportunities during the project construction and operation period.

The technical parameters have been verified with the nameplates /16/ as below:

Boiler	Turbine	Generator

Model type: CQ-75/3.82-Q Rated steam generation capacity: 75 t/h Rated steam pressure: 3.82 MPa Rated steam temperature: 450℃ Efficiency: 86.6% Combusting facility: BFG jet	Model type: N12-3.43/435 Type: Condensing turbine Rated power: 12 MW Rated rotation velocity: 3000 r/min Intake temperature: 435℃	Model type: QF1-12-2A Rated power: 12 MW Rated Voltage: 6300 V Rated rotation velocity: 3000 r/min

The verification team confirmed that there is no proposed or actual change to the registered CDM PDD and revised monitoring plan approved by CDM EB during this monitoring period. All required equipments and procedures are available and implemented in an appropriate manner. All necessary monitoring instruments are installed. All required instruments including standby and operating procedures for the same have been implemented in an appropriate manner. The project is completely operational and the same has been confirmed on-site. Neither mistakes nor malfunction on meters have been observed during this monitoring period.

4.2 Safeguards

4.2.1 No Net Harm

By checking the EIA summary and conclusion provided in the registered CDM PDD, it is confirmed that wind power is green power and the impact caused by wind power on the surrounding ecosystem and residents, wastewater, solid waste and atmosphere etc. is very little, there would be no net harm caused due to the project activity. Also, the EIA of the project are approved by the government.

Also, no potential environment or social economic matter was found during the site visit. The project is renewable energy project and thus no net harm observed in air or water quality on-site.

4.2.2 Local Stakeholder Consultation

A survey was conducted in the project site in Nov 2005. 60 questionnaires were released. The project developer introduced the proposed project in the one-page questionnaire, which was designed to be easily filled in. The opinions expressed by the stakeholders were recorded and are available on request.

The survey showed that the proposed project receives strong support from the local community. They all believe the proposed project will promote local economic development and agree with the project development and construction.

Communications with Local stakeholders was being carried out at periodic intervals. There are no negative comments received for the project.

All such conclusion has been verified through site visit and check registered CDM PDD.

4.3 AFOLU-Specific Safeguards

For non-AFOLU projects, this section is not required.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

CTI confirms that appropriate methods and formulae for calculating baseline emissions, project emissions and leakage have been followed, and the assumptions, emission factors and default values that are applied in the calculation have been justified.

According to the applied methodology, the emission reductions are determined as the difference between the baseline emissions, project emissions and leakage:

$ER_y = BE_y - PE_y$

Baseline emissions

The baseline reductions are determined as multiplying the net electricity supply by the project in year y (EG_y) by the validated ex-ante fixed grid emission factor ($EF_{grid,CM,y}$):

$BE_y = EG_y \times EF_{grid,CM,y}$

Grid emission factor ($EF_{grid,CM,y}$)

EF is the grid emission factor of the which has been verified ex-ante in the validation stage in the registered CDM PDD (version 06 dated 05/08/2008) as 0.97505 tCO_2e/MWh.

The net electricity supply by the project in year y (EGy)

As per the revised MP approved by CDM EB, EGy is the net electricity supply by the project in year y, which is calculated by following formula:

$EG_y = EG_{gen} - EG_{AUX}$

EG_{gen} is electricity generation by the Project in year y which is determined by readings of meter 501 and 581. EG_{Aux} is auxiliary electricity consumption by the Project in year y which is determined by the readings of meter 502 and 582. The data of electronic reading records of DCS were used to cross-checked with that in the Monthly Reading Records (MRRs). The most conservative values have been applied to calculate the net electricity supply by the project in year y. According to the revised monitoring plan approved by CDM EB, calibration of meters & metering should be implemented according to the supply agreement of high voltage electricity of the Project at least once a year. And the accuracy of electricity meter should be 0.5% for electricity generation and 1.0% for electricity supply and auxiliary power consumption. If the meters in compliance with the national standard (DL/T 448-2016) but with lower accuracy (1.0%) are used, the quantity of electricity generation should be deducted by the accuracy for the conservative purpose (Corrected value=measured value×(1-1.0%)).

Electricity generation by the Project in year y (EG_{gen}, MWh):

Electricity generation of unit A					
Period	meter number	Electricity generation recorded by DCS	Electricity generation recorded by MRR	Conservative value after cross check of DCS and MRR	Electricity generation of unit A by the Project
		Electricity (MWh)	Electricity (MWh)	MWh	MWh
		A	B	C=MIN(A,B)	D=C*(1-1.0%)
26/09/2011 - 25/10/2011	501	8,692.480	8,692.480	8,692.480	8605.555
26/10/2011 - 25/11/2011		9,072.939	9,073.180	9,072.939	8982.210
26/11/2011 - 31/12/2011		10,895.435	10,896.880	10,895.435	10786.481
Total from 26/09/2011 - 31/12/2011		**28,660.854**	**28,662.540**	**28,660.854**	**28,374.245**
01/01/2012 - 25/01/2012		8,427.775	8,428.549	8,427.775	8343.497
26/01/2012 - 25/02/2012		10,229.160	10,229.160	10,229.160	10126.868
26/02/2012 - 25/03/2012		9,636.800	9,636.800	9,636.800	9540.432
26/03/2012 - 25/04/2012		7,857.280	7,857.280	7,857.280	7778.707
26/04/2012 - 25/05/2012		9,127.324	9,129.760	9,127.324	9036.051
26/05/2012 - 30/06/2012		8,791.113	8,792.480	8,791.113	8703.202
01/07/2012 - 25/07/2012		9,530.402	9,530.960	9,530.402	9435.098
26/07/2012 - 25/08/2012		9,292.400	9,292.400	9,292.400	9199.476
26/08/2012 - 25/09/2012		8,851.040	8,851.040	8,851.040	8762.530
26/09/2012 - 25/10/2012		10,246.315	10,247.280	10,246.315	10143.852
26/10/2012 - 25/11/2012		9,143.294	9,140.960	9,140.960	9049.550
26/11/2012 - 31/12/2012		8,648.832	8,649.600	8,648.832	8562.344
Total in 2012		**109,781.735**	**109,786.269**	**109,779.401**	**108,681.607**
01/01/2013 - 25/01/2013		8,796.948	8,795.520	8,795.520	8707.565
26/01/2013 - 25/02/2013		9,633.760	9,633.760	9,633.760	9537.422
26/02/2013 - 25/03/2013		8,927.600	8,927.600	8,927.600	8838.324
26/03/2013 - 25/04/2013		8,592.280	8,593.040	8,592.280	8506.357
26/04/2013 - 25/05/2013		9,127.103	9,128.560	9,127.103	9035.832
26/05/2013 - 25/06/2013		8,619.520	8,616.960	8,616.960	8530.790
26/06/2013 - 25/07/2013		10,287.440	10,287.440	10,287.440	10184.566
26/07/2013 - 25/08/2013		8,375.240	8,375.240	8,375.240	8291.488
26/08/2013 - 25/09/2013		9,224.742	9,225.851	9,224.742	9132.495
26/09/2013 - 25/10/2013		8,376.538	8,377.862	8,376.538	8292.773
26/10/2013 - 25/11/2013		7,365.864	7,366.883	7,365.864	7292.205
26/11/2013 - 31/12/2013		9,254.894	9,255.953	9,254.894	9162.345
Total in 2013		**106,581.929**	**106,584.669**	**106,577.941**	**105,512.162**
01/01/2014 - 25/01/2014		8,440.800	8,440.800	8,440.800	8356.392
26/01/2014 - 22/02/2014		8,484.370	8,486.800	8,484.370	8399.526

23/02/2014 - 25/03/2014		10,580.120	10,579.760	10,579.760	10473.962
26/03/2014 - 25/04/2014		7,546.303	7,547.200	7,546.303	7470.840
26/04/2014 - 25/05/2014		8,451.056	8,451.280	8,451.056	8366.545
26/05/2014 - 30/06/2014		8,257.560	8,257.560	8,257.560	8174.984
01/07/2014 - 25/07/2014		7,853.240	7,853.240	7,853.240	7774.708
26/07/2014 - 25/08/2014		8,273.001	8,273.280	8,273.001	8190.271
26/08/2014 - 25/09/2014		8,385.967	8,386.640	8,385.967	8302.107
26/09/2014 - 25/10/2014		9,780.015	9,781.360	9,780.015	9682.215
26/10/2014 - 25/11/2014		8,441.784	8,440.560	8,440.560	8356.154
26/11/2014 - 31/12/2014		10,432.770	10,430.320	10,430.320	10326.017
Total in 2014		**104,926.986**	**104,928.800**	**104,922.952**	**103,873.722**
01/01/2015 - 25/01/2015		7,974.556	7,975.643	7,974.556	7894.810
26/01/2015 - 22/02/2015		8,389.742	8,390.541	8,389.742	8305.845
23/02/2015 - 25/03/2015		8,231.739	8,233.165	8,231.739	8149.422
26/03/2015 - 25/04/2015		9,600.510	9,598.160	9,598.160	9502.178
26/04/2015 - 25/05/2015		8,844.930	8,846.400	8,844.930	8756.481
26/05/2015 - 30/06/2015		7,965.041	7,965.380	7,965.041	7885.391
01/07/2015 - 25/07/2015		7,426.504	7,428.965	7,426.504	7352.239
26/07/2015 - 25/08/2015		8,189.600	8,189.600	8,189.600	8107.704
26/08/2015 - 25/09/2015		9,150.145	9,150.480	9,150.145	9058.644
26/09/2015 - 25/10/2015		10,959.508	10,960.840	10,959.508	10849.913
26/10/2015 - 25/11/2015		8,460.653	8,462.760	8,460.653	8376.046
26/11/2015 - 31/12/2015		8,603.930	8,603.930	8,603.930	8517.891
Total in 2015		**103,796.858**	**103,805.864**	**103,794.508**	**102,756.563**
01/01/2016 - 25/01/2016		8,115.763	8,116.564	8,115.763	8034.605
26/01/2016 - 26/02/2016		9,372.168	9,372.168	9,372.168	9278.446
27/02/2016 - 25/03/2016		8,569.517	8,570.280	8,569.517	8483.822
26/03/2016 - 25/04/2016		7,108.166	7,109.440	7,108.166	7037.084
26/04/2016 - 25/05/2016		9,018.880	9,018.880	9,018.880	8928.691
26/05/2016 - 30/06/2016		8,091.080	8,091.080	8,091.080	8010.169
01/07/2016 - 17/07/2016		6,614.320	6,614.320	6,614.320	6548.177
Total from 01/01/2016 - 17/07/2016		**56,889.894**	**56,892.732**	**56,889.894**	**56,320.995**
Total		**510,638.256**	**510,660.874**	**510,625.550**	**505,519.294**

*Note: 17/07/2016 is not the cut-off time of July 2016. Since the readings of meter 501 are recorded hourly by the DCS automatically, and daily recorded by PP manually. The Reading Records during the period 01/07/2016 - 17/07/2016 /7/ were generated manually by PP and confirmed by Sichuan Provincial Chuanwei Group Company /8/. The data of electronic reading records of DCS have been crosschecked with the Meter Reading Records during the period 01/07/2016 - 17/07/2016

confirmed by Sichuan Provincial Chuanwei Group Company. The smaller values are used to calculate baseline emissions, which is conservative.

Electricity generation of unit B					
Period	meter number	Electricity generation recorded by DCS	Electricity generation recorded by MRR	Conservative value after cross check of DCS and MRR	Electricity generation of unit B by the Project
		Electricity (MWh)	Electricity (MWh)	MWh	MWh
		E	F	G=MIN(E,F)	H=G*(1-1.0%)
26/09/2011 - 25/10/2011	581	7,754.400	7,754.400	7,754.400	7676.856
26/10/2011 - 25/11/2011		9,272.480	9,272.480	9,272.480	9179.755
26/11/2011 - 31/12/2011		9,860.410	9,860.410	9,860.410	9761.806
Total from 26/09/2011 - 31/12/2011		**26,887.290**	**26,887.290**	**26,887.290**	**26,618.417**
01/01/2012 - 25/01/2012		8,311.920	8,311.920	8,311.920	8228.801
26/01/2012 - 25/02/2012		10,719.360	10,719.360	10,719.360	10612.166
26/02/2012 - 25/03/2012		9,098.640	9,098.640	9,098.640	9007.654
26/03/2012 - 25/04/2012		9,813.040	9,813.040	9,813.040	9714.910
26/04/2012 - 25/05/2012		8,888.440	8,889.520	8,888.440	8799.556
26/05/2012 - 30/06/2012		8,668.880	8,668.880	8,668.880	8582.191
01/07/2012 - 25/07/2012		8,112.440	8,114.360	8,112.440	8031.316
26/07/2012 - 25/08/2012		10,145.240	10,147.640	10,145.240	10043.788
26/08/2012 - 25/09/2012		8,873.250	8,874.260	8,873.250	8784.518
26/09/2012 - 25/10/2012		9,225.360	9,226.520	9,225.360	9133.106
26/10/2012 - 25/11/2012		8,614.150	8,615.880	8,614.150	8528.009
26/11/2012 - 31/12/2012		9,690.640	9,690.640	9,690.640	9593.734
Total in 2012		**110,161.360**	**110,170.660**	**110,161.360**	**109,059.746**
01/01/2013 - 25/01/2013		10,618.160	10,618.160	10,618.160	10511.978
26/01/2013 - 25/02/2013		8,434.960	8,434.960	8,434.960	8350.610
26/02/2013 - 25/03/2013		9,918.360	9,918.360	9,918.360	9819.176
26/03/2013 - 25/04/2013		8,661.460	8,662.880	8,661.460	8574.845
26/04/2013 - 25/05/2013		9,004.080	9,004.080	9,004.080	8914.039
26/05/2013 - 25/06/2013		7,558.080	7,558.080	7,558.080	7482.499
26/06/2013 - 25/07/2013		10,943.206	10,943.206	10,943.206	10833.774
26/07/2013 - 25/08/2013		8,043.060	8,042.460	8,042.460	7962.035
26/08/2013 - 25/09/2013		8,513.920	8,513.920	8,513.920	8428.781
26/09/2013 - 25/10/2013		7,766.800	7,766.800	7,766.800	7689.132
26/10/2013 - 25/11/2013		9,759.360	9,759.360	9,759.360	9661.766
26/11/2013 - 31/12/2013		8,290.640	8,290.640	8,290.640	8207.734
Total in 2013		**107,512.086**	**107,512.906**	**107,511.486**	**106,436.371**

01/01/2014 - 25/01/2014		7,650.560	7,650.560	7,650.560	7574.054
26/01/2014 - 22/02/2014		9,550.760	9,551.520	9,550.760	9455.252
23/02/2014 - 25/03/2014		8,734.480	8,734.480	8,734.480	8647.135
26/03/2014 - 25/04/2014		7,738.870	7,738.870	7,738.870	7661.481
26/04/2014 - 25/05/2014		8,465.740	8,466.620	8,465.740	8381.083
26/05/2014 - 30/06/2014		7,541.600	7,541.600	7,541.600	7466.184
01/07/2014 - 25/07/2014		10,290.864	10,290.864	10,290.864	10187.955
26/07/2014 - 25/08/2014		8,510.640	8,510.640	8,510.640	8425.534
26/08/2014 - 25/09/2014		8,206.200	8,206.200	8,206.200	8124.138
26/09/2014 - 25/10/2014		9,310.220	9,311.740	9,310.220	9217.118
26/10/2014 - 25/11/2014		8,206.290	8,208.250	8,206.290	8124.227
26/11/2014 - 31/12/2014		8,358.000	8,358.000	8,358.000	8274.420
Total in 2014		**102,564.224**	**102,569.344**	**102,564.224**	**101,538.582**
01/01/2015 - 25/01/2015		7,977.600	7,977.600	7,977.600	7897.824
26/01/2015 - 22/02/2015		9,893.600	9,892.400	9,892.400	9793.476
23/02/2015 - 25/03/2015		7,569.360	7,569.360	7,569.360	7493.666
26/03/2015 - 25/04/2015		10,108.880	10,108.880	10,108.880	10007.791
26/04/2015 - 25/05/2015		8,022.000	8,022.000	8,022.000	7941.780
26/05/2015 - 30/06/2015		8,536.800	8,536.800	8,536.800	8451.432
01/07/2015 - 25/07/2015		9,832.080	9,832.080	9,832.080	9733.759
26/07/2015 - 25/08/2015		8,333.040	8,333.040	8,333.040	8249.710
26/08/2015 - 25/09/2015		8,818.320	8,818.320	8,818.320	8730.137
26/09/2015 - 25/10/2015		9,806.880	9,806.880	9,806.880	9708.811
26/10/2015 - 25/11/2015		8,977.040	8,977.040	8,977.040	8887.270
26/11/2015 - 31/12/2015		10,459.690	10,459.690	10,459.690	10355.093
Total in 2015		**108,335.290**	**108,334.090**	**108,334.090**	**107,250.749**
01/01/2016 - 25/01/2016		7,881.460	7,881.460	7,881.460	7802.645
26/01/2016 - 26/02/2016		8,344.400	8,344.400	8,344.400	8260.956
27/02/2016 - 25/03/2016		7,712.221	7,714.660	7,712.221	7635.099
26/03/2016 - 25/04/2016		9,284.000	9,284.000	9,284.000	9191.160
26/04/2016 - 25/05/2016		8,639.440	8,639.440	8,639.440	8553.046
26/05/2016 - 30/06/2016		8,582.040	8,582.040	8,582.040	8496.220
01/07/2016 - 17/07/2016		5,695.400	5,695.400	5,695.400	5638.446
Total from 01/01/2016 - 17/07/2016		**56,138.961**	**56,141.400**	**56,138.961**	**55,577.571**
Total		**511,599.211**	**511,615.690**	**511,597.411**	**506,481.436**

*Note: 17/07/2016 is not the cut-off time of July 2016. Since the readings of meter 581 are recorded hourly by the DCS automatically, and daily recorded by PP manually. The Reading Records during the period 01/07/2016 - 17/07/2016 /7/ were generated manually by PP and confirmed by Sichuan Provincial Chuanwei Group Company /8/. The data of electronic reading records of DCS have been

crosschecked with the Meter Reading Records during the period 01/07/2016 - 17/07/2016 confirmed by Sichuan Provincial Chuanwei Group Company. The smaller values are used to calculate baseline emissions, which is conservative.

Therefore,Electricity generation by the Project in year y (EG_{gen}) = Electricity generation of unit A + Electricity generation of unit B = 505519.294 + 506481.436 = 1012000.731 MWh

Auxiliary electricity consumption by the Project in year y (EG_{AUX}, MWh):

Auxiliary electricity consumption of unit A				
Period	meter number	Auxiliary electricity consumption recorded by DCS	Auxiliary electricity consumption recorded by MRR	Conservative value after cross check of DCS and MRR
		Electricity(MWh)	Electricity(MWh)	MWh
		I	J	K=MAX(I,J)
26/09/2011 - 25/10/2011	502	753.600	753.600	753.600
26/10/2011 - 25/11/2011		587.140	587.140	587.140
26/11/2011 - 31/12/2011		818.640	818.640	818.640
Total from 26/09/2011 - 31/12/2011		**2,159.380**	**2,159.380**	**2,159.380**
01/01/2012 - 25/01/2012		451.220	452.160	452.160
26/01/2012 - 25/02/2012		678.960	678.960	678.960
26/02/2012 - 25/03/2012		676.190	675.360	676.190
26/03/2012 - 25/04/2012		686.160	686.160	686.160
26/04/2012 - 25/05/2012		741.120	741.120	741.120
26/05/2012 - 30/06/2012		707.280	707.280	707.280
01/07/2012 - 25/07/2012		687.360	687.360	687.360
26/07/2012 - 25/08/2012		718.230	719.040	719.040
26/08/2012 - 25/09/2012		681.360	681.360	681.360
26/09/2012 - 25/10/2012		695.280	695.280	695.280
26/10/2012 - 25/11/2012		690.720	690.720	690.720
26/11/2012 - 31/12/2012		842.880	842.880	842.880
Total in 2012		**8,256.760**	**8,257.680**	**8,258.510**
01/01/2013 - 25/01/2013		586.750	586.750	586.750
26/01/2013 - 25/02/2013		631.330	630.240	631.330
26/02/2013 - 25/03/2013		678.480	678.480	678.480
26/03/2013 - 25/04/2013		719.520	719.520	719.520
26/04/2013 - 25/05/2013		678.480	678.480	678.480
26/05/2013 - 25/06/2013		714.290	713.040	714.290
26/06/2013 - 25/07/2013		656.160	656.160	656.160
26/07/2013 - 25/08/2013		678.000	678.000	678.000
26/08/2013 - 25/09/2013		123.450	123.460	123.460

26/09/2013 - 25/10/2013		181.210	181.220	181.220
26/10/2013 - 25/11/2013		194.560	194.560	194.560
26/11/2013 - 31/12/2013		182.220	182.220	182.220
Total in 2013		**6,024.450**	**6,022.130**	**6,024.470**
01/01/2014 - 25/01/2014		516.480	516.480	516.480
26/01/2014 - 22/02/2014		562.080	562.080	562.080
23/02/2014 - 25/03/2014		628.140	629.280	629.280
26/03/2014 - 25/04/2014		248.400	248.400	248.400
26/04/2014 - 25/05/2014		426.480	426.480	426.480
26/05/2014 - 30/06/2014		602.110	603.280	603.280
01/07/2014 - 25/07/2014		451.040	451.040	451.040
26/07/2014 - 25/08/2014		668.880	668.880	668.880
26/08/2014 - 25/09/2014		662.160	662.160	662.160
26/09/2014 - 25/10/2014		586.320	586.320	586.320
26/10/2014 - 25/11/2014		585.600	585.600	585.600
26/11/2014 - 31/12/2014		164.320	164.320	164.320
Total 2014		**6,102.010**	**6,104.320**	**6,104.320**
01/01/2015 - 25/01/2015		331.080	331.080	331.080
26/01/2015 - 22/02/2015		240.600	240.600	240.600
23/02/2015 - 25/03/2015		256.740	256.830	256.830
26/03/2015 - 25/04/2015		197.430	198.960	198.960
26/04/2015 - 25/05/2015		581.280	581.280	581.280
26/05/2015 - 30/06/2015		694.760	694.760	694.760
01/07/2015 - 25/07/2015		482.920	482.920	482.920
26/07/2015 - 25/08/2015		612.840	612.840	612.840
26/08/2015 - 25/09/2015		289.680	289.680	289.680
26/09/2015 - 25/10/2015		292.734	292.910	292.910
26/10/2015 - 25/11/2015		283.969	284.140	284.140
26/11/2015 - 31/12/2015		275.194	275.370	275.370
Total 2015		**4,539.227**	**4,541.370**	**4,541.370**
01/01/2016 - 25/01/2016		266.420	266.600	266.600
26/01/2016 - 26/02/2016		257.645	257.830	257.830
27/02/2016 - 25/03/2016		248.871	249.060	249.060
26/03/2016 - 25/04/2016		240.096	240.290	240.290
26/04/2016 - 25/05/2016		231.321	231.520	231.520
26/05/2016 - 30/06/2016		222.547	222.750	222.750
01/07/2016 - 17/07/2016*		213.980	213.980	213.980
Total from 01/01/2016 - 17/07/2016		**1,680.880**	**1,682.030**	**1,682.030**
Total		**28,762.707**	**28,766.910**	**28,770.080**

*Note: 17/07/2016 is not the cut-off time of July 2016. Since the readings of meter 502 are recorded hourly by the DCS automatically, and daily recorded by PP manually. The Reading Records during the period 01/07/2016 - 17/07/2016 /7/ were generated manually by PP and confirmed by Sichuan Provincial Chuanwei Group Company /8/. The data of electronic reading records of DCS have been crosschecked with the Meter Reading Records during the period 01/07/2016 - 17/07/2016 confirmed by Sichuan Provincial Chuanwei Group Company. The greater values are used to calculate baseline emissions, which is conservative.

Auxiliary electricity consumption of unit B				
Period	meter number	Auxiliary electricity consumption recorded by DCS	Auxiliary electricity consumption recorded by MRR	Conservative value after cross check of DCS and by MRR
		Electricity(MWh)	Electricity(MWh)	MWh
		L	M	N=MAXE1(1,M)
26/09/2011 - 25/10/2011	582	367.201	367.201	367.201
26/10/2011 - 25/11/2011		288.189	288.189	288.189
26/11/2011 - 31/12/2011		299.382	299.382	299.382
Total from 26/09/2011 - 31/12/2011		**954.772**	**954.772**	**954.772**
01/01/2012 - 25/01/2012		587.178	587.178	587.178
26/01/2012 - 25/02/2012		318.685	318.685	318.685
26/02/2012 - 25/03/2012		212.360	213.920	213.920
26/03/2012 - 25/04/2012		248.096	248.096	248.096
26/04/2012 - 25/05/2012		352.389	352.389	352.389
26/05/2012 - 30/06/2012		260.958	260.958	260.958
01/07/2012 - 25/07/2012		474.415	474.415	474.415
26/07/2012 - 25/08/2012		415.965	415.965	415.965
26/08/2012 - 25/09/2012		203.536	202.324	203.536
26/09/2012 - 25/10/2012		136.120	136.120	136.120
26/10/2012 - 25/11/2012		136.480	136.480	136.480
26/11/2012 - 31/12/2012		737.920	737.920	737.920
Total in 2012		**4,084.102**	**4,084.450**	**4,085.662**
01/01/2013 - 25/01/2013		592.758	592.758	592.758
26/01/2013 - 25/02/2013		628.107	628.107	628.107
26/02/2013 - 25/03/2013		787.824	788.931	788.931
26/03/2013 - 25/04/2013		854.547	854.547	854.547
26/04/2013 - 25/05/2013		778.509	778.509	778.509
26/05/2013 - 25/06/2013		593.871	593.871	593.871
26/06/2013 - 25/07/2013		528.715	528.715	528.715
26/07/2013 - 25/08/2013		648.045	648.045	648.045
26/08/2013 - 25/09/2013		627.633	627.633	627.633

26/09/2013 - 25/10/2013		611.917	611.917	611.917
26/10/2013 - 25/11/2013		627.834	627.834	627.834
26/11/2013 - 31/12/2013		708.248	708.248	708.248
Total in 2013		**7,988.008**	**7,989.115**	**7,989.115**
01/01/2014 - 25/01/2014		474.415	474.415	474.415
26/01/2014 - 22/02/2014		415.965	415.965	415.965
23/02/2014 - 25/03/2014		703.536	702.324	703.536
26/03/2014 - 25/04/2014		136.120	136.120	136.120
26/04/2014 - 25/05/2014		136.480	136.480	136.480
26/05/2014 - 30/06/2014		737.920	737.920	737.920
01/07/2014 - 25/07/2014		540.049	540.049	540.049
26/07/2014 - 25/08/2014		440.364	440.364	440.364
26/08/2014 - 25/09/2014		518.192	518.192	518.192
26/09/2014 - 25/10/2014		55.200	55.200	55.200
26/10/2014 - 25/11/2014		68.640	68.640	68.640
26/11/2014 - 31/12/2014		738.167	738.167	738.167
Total in 2014		**4,965.048**	**4,963.836**	**4,965.048**
01/01/2015 - 25/01/2015		581.623	582.709	582.709
26/01/2015 - 22/02/2015		708.226	708.226	708.226
23/02/2015 - 25/03/2015		636.076	636.076	636.076
26/03/2015 - 25/04/2015		751.898	751.368	751.898
26/04/2015 - 25/05/2015		742.800	742.800	742.800
26/05/2015 - 30/06/2015		870.483	870.483	870.483
01/07/2015 - 25/07/2015		533.616	533.616	533.616
26/07/2015 - 25/08/2015		759.531	759.531	759.531
26/08/2015 - 25/09/2015		388.800	388.800	388.800
26/09/2015 - 25/10/2015		209.920	209.920	209.920
26/10/2015 - 25/11/2015		236.080	236.080	236.080
26/11/2015 - 31/12/2015		279.597	279.597	279.597
Total in 2015		**6,698.650**	**6,699.206**	**6,699.736**
01/01/2016 - 25/01/2016		267.858	267.858	267.858
26/01/2016 - 26/02/2016		160.800	160.800	160.800
27/02/2016 - 25/03/2016		404.789	406.015	406.015
26/03/2016 - 25/04/2016		221.680	221.680	221.680
26/04/2016 - 25/05/2016		231.080	231.080	231.080
26/05/2016 - 30/06/2016		799.179	799.179	799.179
01/07/2016 - 17/07/2016*		577.365	577.365	577.365
Total from 01/01/2016 - 17/07/2016		**2,662.751**	**2,663.977**	**2,663.977**
Total		**27,353.331**	**27,355.356**	**27,358.310**

*Note: 17/07/2016 is not the cut-off time of July 2016. Since the readings of meter 582 are recorded hourly by the DCS automatically, and daily recorded by PP manually. The Reading Records during the period 01/07/2016 - 17/07/2016 /7/ were generated manually by PP and confirmed by Sichuan Provincial Chuanwei Group Company /8/. The data of electronic reading records of DCS have been crosschecked with the Meter eading Records during the period 01/07/2016 - 17/07/2016 confirmed by Sichuan Provincial Chuanwei Group Company. The greater values are used to calculate baseline emissions, which is conservative.

Therefore, the auxiliary electricity consumption by the Project in year y (EG_{AUX}) = Auxiliary electricity consumption of unit A + Auxiliary electricity consumption of unit B = 28,770.080 + 27,358.310 = 56128.390 MWh.

Hence, the net electricity supply by the project in year y (EGy) is calculated as:

$EG_y = EG_{gen} - EG_{AUX}$ = 1012000.731 - 56128.390 = 955,872.341 MWh

And the corresponding baseline emission reductions are calculated as:

$BE_y = EG_y \times EF_{grid,CM,y}$ = 955,872.341 × 0.97505= 932,021 tCO_2e

Project emissions

As per the registered PDD, the project emissions are generated due to the combustion of the auxiliary natural gas. The project emissions generated from the combustion of the natural gas are calculated according to the consolidated baseline methodology ACM0004 and registered PDD as:.

$$PE_y = \sum_i Q_i \times NCV_i \times EF_i \times \frac{44}{12} \times OXID_i$$

Where:

PE_y is the project emission in year y (tCO_2e);

Q_i is the volume unit of fuel (natural gas) consumed (m^3);

NCV_i is the net calorific value per volume unit of fuel (natural gas) (TJ/m3);

EF_i is the carbon emissions factor per unit of energy of the fuel (natural gas) (tc/TJ);

OXIDi is the oxidation factor of the fuel (natural gas).

As per 2006 IPCC Guidelines for National Greenhouse Gas Inventories, the latest value of EF_i and $OXID_i$ was 15.300 tC/TJ and 100%.

The volume unit of fuel (natural gas) consumed (Q_i) during this monitoring period were:

Period	Natural gas consumed by Unit A from MRRs	Natural gas consumed by Unit B from MRRs	Total natural	Natural gas Transaction Notes	Conservative value used for calculation of project emissions
	m^3	m^3	m^3	m^3	m^3

26/09/2011 - 25/10/2011	72336	98901	171237	171237	171237
26/10/2011 - 25/11/2011	13539	91085	104624	104624	104624
26/11/2011 - 31/12/2011	42960	55190	98150	107150	107150
Total from 26/09/2011 - 25/10/2011	**128835**	**245176**	**374011**	**383011**	**383011**
01/01/2012 - 25/01/2012	33579	24007	57586	66810	66810
26/01/2012 - 25/02/2012	10756	53263	64019	80220	80220
26/02/2012 - 25/03/2012	28003	28320	56323	62036	62036
26/03/2012 - 25/04/2012	15622	15490	31112	49183	49183
26/04/2012 - 25/05/2012	54756	44734	99490	99490	99490
26/05/2012 - 30/06/2012	36482	33002	69484	69484	69484
01/07/2012 - 25/07/2012	43521	53273	96794	96794	96794
26/07/2012 - 25/08/2012	27451	30862	58313	58313	58313
26/08/2012 - 25/09/2012	13032	26534	39566	53089	53089
26/09/2012 - 25/10/2012	32920	53422	86342	86342	86342
26/10/2012 - 25/11/2012	27342	34253	61595	61595	61595
26/11/2012 - 31/12/2012	41279	53272	94551	101844	101844
Total in 2012	**364743**	**450432**	**815175**	**885200**	**885200**
01/01/2013 - 25/01/2013	29854	27292	57146	57146	57146
26/01/2013 - 25/02/2013	14373	42399	56772	56772	56772
26/02/2013 - 25/03/2013	34264	24869	59133	68133	68133
26/03/2013 - 25/04/2013	14038	15241	29279	45317	45317
26/04/2013 - 25/05/2013	12862	12561	25423	25423	25423
26/05/2013 - 25/06/2013	26057	27420	53477	53477	53477
26/06/2013 - 25/07/2013	15091	2498	17589	23689	23689
26/07/2013 - 25/08/2013	15443	4024	19467	27402	27402
26/08/2013 - 25/09/2013	4829	5258	10087	21087	21087
26/09/2013 - 25/10/2013	5376	3708	9084	16084	16084
26/10/2013 - 25/11/2013	7652	8162	15814	15814	15814
26/11/2013 - 31/12/2013	5873	6117	11990	19990	19990
Total in 2013	**185712**	**179549**	**365261**	**430334**	**430334**

01/01/2014 - 25/01/2014	18750	5444	24194	24194	24194
26/01/2014 - 22/02/2014	13852	5307	19159	19159	19159
23/02/2014 - 25/03/2014	22388	6606	28994	28994	28994
26/03/2014 - 25/04/2014	17544	6453	23997	40997	40997
26/04/2014 - 25/05/2014	8270	6635	14905	21986	21986
26/05/2014 - 30/06/2014	11463	8388	19851	19851	19851
01/07/2014 - 25/07/2014	25591	22139	47730	57715	57715
26/07/2014 - 25/08/2014	23522	27291	50813	61066	61066
26/08/2014 - 25/09/2014	6738	7858	14596	23321	23321
26/09/2014 - 25/10/2014	65341	56235	121576	121576	121576
26/10/2014 - 25/11/2014	5388	6764	12152	12152	12152
26/11/2014 - 31/12/2014	4526	7125	11651	22652	22652
Total in 2014	**223373**	**166245**	**389618**	**453663**	**453663**
01/01/2015 - 25/01/2015	26572	25381	51953	51953	51953
26/01/2015 - 22/02/2015	5638	8631	14269	14269	14269
23/02/2015 - 25/03/2015	16735	16127	32862	41862	41862
26/03/2015 - 25/04/2015	6906	7879	14785	23242	23242
26/04/2015 - 25/05/2015	7682	6760	14442	19442	19442
26/05/2015 - 30/06/2015	53415	67653	121068	121829	121829
01/07/2015 - 25/07/2015	67653	65439	133092	133092	133092
26/07/2015 - 25/08/2015	4356	7658	12014	18790	18790
26/08/2015 - 25/09/2015	10765	10875	21640	21640	21640
26/09/2015 - 25/10/2015	7435	6798	14233	14233	14233
26/10/2015 - 25/11/2015	14572	18973	33545	50146	50146
26/11/2015 - 31/12/2015	6793	8158	14951	27916	27916
Total in 2015	**228522**	**250332**	**478854**	**538414**	**538414**
01/01/2016 - 25/01/2016	9678	9391	19069	19069	19069
26/01/2016 - 26/02/2016	23609	28485	52094	70107	70107
27/02/2016 - 25/03/2016	11612	12211	23823	34269	34269
26/03/2016 - 25/04/2016	7448	5673	13121	31965	31965

26/04/2016 - 25/05/2016	56733	45629	102362	102362	102362
26/05/2016 - 30/06/2016	14323	23416	37739	59537	59537
01/07/2016 - 17/07/2016	7892	7831	15723	15723	15723
Total from 01/01/2016 - 17/07/2016	**131295**	**132636**	**263931**	**333032**	**333032**
Total	**1,262,480**	**1,424,370**	**2,686,850**	**3,023,654**	**3,023,654**

*Note: 17/07/2016 is not the cut-off time of July 2016. The monitored data recorded by PP during the period 01/07/2016 - 17/07/2016 is cross-checked with Natural Gas Confirmation Note /9/ of this period issued by Sichuan Provincial Chuanwei Group Company. The conservative value is used to calculate emission reductions.

During the site visit, it is confirmed that the natural gas is supplied from a main pipe and then distributes through different pipes to the two generators (Unit A and Unit B), also to other facilities in the area of Chuanwei Group which is not within the project boundary. The volumes of Unit A, B and other facilities couldn't be separated when issuing the Natural Gas Transaction Notes. Therefore, the total volumes of Unit A, B and other facilities in the Natural Gas Transaction Notes /9/ are used, which is conservative.

The NCV value of natural gas was measured by calorific value meter at least once a month and recorded, which satisfied with that in the revised MP approved by CDM EB. The unit kcal/m^3 was conversed to kcal/m^3 by multiplying with 0.0041816.

Measured NCV of natural gas		
Period	The monthly average value of the measured NCV data	The monthly average value of the measured NCV data after unit conversion
	kcal/m^3	MJ/m^3
26/09/2011 - 25/10/2011	8,184	34.222
26/10/2011 - 25/11/2011	8,225	34.394
26/11/2011 - 31/12/2011	8,262	34.548
01/01/2012 - 25/01/2012	8,216	34.356
26/01/2012 - 25/02/2012	8,163	34.134
26/02/2012 - 25/03/2012	8,217	34.360
26/03/2012 - 25/04/2012	8,218	34.364
26/04/2012 - 25/05/2012	8,156	34.105
26/05/2012 - 30/06/2012	8,265	34.561
01/07/2012 - 25/07/2012	8,136	34.021
26/07/2012 - 25/08/2012	8,266	34.565
26/08/2012 - 25/09/2012	8,295	**34.686**
26/09/2012 - 25/10/2012	8,167	34.151

26/10/2012 - 25/11/2012	8,119	33.950
26/11/2012 - 31/12/2012	8,284	34.640
01/01/2013 - 25/01/2013	8,158	34.113
26/01/2013 - 25/02/2013	8,279	34.619
26/02/2013 - 25/03/2013	8,218	34.364
26/03/2013 - 25/04/2013	8,158	34.113
26/04/2013 - 25/05/2013	8,196	34.272
26/05/2013 - 25/06/2013	8,218	34.364
26/06/2013 - 25/07/2013	8,158	34.113
26/07/2013 - 25/08/2013	8,212	34.339
26/08/2013 - 25/09/2013	8,186	34.231
26/09/2013 - 25/10/2013	8,235	34.435
26/10/2013 - 25/11/2013	8,121	33.959
26/11/2013 - 31/12/2013	8,212	34.339
01/01/2014 - 25/01/2014	8,165	34.143
26/01/2014 - 22/02/2014	8,248	34.490
23/02/2014 - 25/03/2014	8,218	34.364
26/03/2014 - 25/04/2014	8,132	34.005
26/04/2014 - 25/05/2014	8,211	34.335
26/05/2014 - 30/06/2014	8,129	33.992
01/07/2014 - 25/07/2014	8,239	34.452
26/07/2014 - 25/08/2014	8,266	34.565
26/08/2014 - 25/09/2014	8,167	34.151
26/09/2014 - 25/10/2014	8,121	33.959
26/10/2014 - 25/11/2014	8,232	34.423
26/11/2014 - 31/12/2014	8,176	34.189
01/01/2015 - 25/01/2015	8,279	34.619
26/01/2015 - 22/02/2015	8,228	34.406
23/02/2015 - 25/03/2015	8,158	34.113
26/03/2015 - 25/04/2015	8,137	34.026
26/04/2015 - 25/05/2015	8,268	34.573
26/05/2015 - 30/06/2015	8,158	34.113
01/07/2015 - 25/07/2015	8,201	34.293
26/07/2015 - 25/08/2015	8,145	34.059
26/08/2015 - 25/09/2015	8,136	34.021
26/09/2015 - 25/10/2015	8,175	34.185

26/10/2015 - 25/11/2015	8,238	34.448
26/11/2015 - 31/12/2015	8,125	33.976
01/01/2016 - 25/01/2016	8,253	34.511
26/01/2016 - 26/02/2016	8,127	33.984
27/02/2016 - 25/03/2016	8,156	34.105
26/03/2016 - 25/04/2016	8,226	34.398
26/04/2016 - 25/05/2016	8,248	34.490
26/05/2016 - 30/06/2016	8,116	33.938
01/07/2016 - 17/07/2016	8,186	34.231
Maximum NCV value	8,295	**34.686**

The maxumum NCV value measured was 34.686 MJ/m^3. The measured NCV value was cross checked with the national data. As per the latest national data, which was from China Energy Statistical Yearbook 2018, the NCV value is 32238~38931KJ/NM^3. The upper limit value 38.931MJ/NM^3 was used to calculate the project emission, which is conservative.

Therefore, the project emission (PE_y) is calculated as:

Period	Q_{NG}	NCV	EFi	OXIDi	PEy
	m3	MJ/m3	t C /TJ	-	tCO_2e
	A	B	C	D	E=A*B*C*D*44/12/10^6
Total from 26/09/2011 - 31/12/2011	383011	38.931	15.300	100%	837
Total in 2012	885200	38.931	15.300	100%	1,934
Total in 2013	430334	38.931	15.300	100%	940
Total in 2014	453663	38.931	15.300	100%	991
Total in 2015	538414	38.931	15.300	100%	1,176
Total from 01/01/2016 - 17/07/2016	333032	38.931	15.300	100%	728
Total	**3,023,654**	**38.931**	**15.300**	**100%**	**6,606**

Leakages

Leakage does not need to be accounted for this project as per the registered CDM PDD.

Emission reductions

The emission reductions for this monitoring period was calculated as:

Monitoring period	**GHG emission reductions or removals (tCO_2e)**
26/09/2011 to 17/07/2016, i.e. 1757 days	925,415
Total ERs claimed (in 1757 days)	925,415

Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in validated VCS PDCDM PDD and previous verification reports, the emission reduction in 1st and 2nd monitoring period, it is found that:

Item	Emission reductions or GHG period	Values estimated in exante calculation of registered PDD (tCO_2e)	Actual values achieved during this monitoring period (tCO_2e)
Total in 1st monitoring period	10/09/2008 – 31/10/2009	209,905	170,769
Total in 2nd monitoring period	01/11/2009 – 25/09/2011	347,990	282,971
Total in 3rd monitoring period	26/09/2011 – 17/07/2016	881,007	**925,415**
Sum	10/09/2008 –-17/07/2016	1,438,902	1,379,155

From the above table, it is found that the emission reductions claimed are 925,415 tCO_2e in this monitoring period (i.e. 1757 days). Compared with yearly expected emission reductions 881,007 tCO_2e (calculated as 183,021 tCO_2e/365 days*1757 days) in the registered CDM PDD, the reported emission reductions in this monitoring period are 5.73% higher than the expected. However, the emission reductions generated in the three monitoring periods in the crediting period is 1,379,155 tCO_2e, which is 4.15% lower than that estimated in the registered CDM PDD. Therefore, the variation of emission reductions in this monitoring period is considered to be in the reasonable variation range.

CTI is able to confirm that the actual power supply and also emission reductions reported in this monitoring period are reasonable and appropriate. CTI verified the input data for calculating emission reductions and the calculating process, and confirmed the result were complete and transparent.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

All necessary documentations are collected, referenced and aggregated, which is easily accessible in hard-copy or electronic format. Measurements are performed by calibrated equipment, and the key data can also be cross-checked via other sources, such as records, receipts and inventory data. No assumptions are used that have any material influence on reported emission reductions.

CTI concludes that during this monitoring period, the evidences for determination of emission reductions are sufficient and reasonable, and the calculation of emission reductions is reliable.

4.6 Non-Permanence Risk Analysis

The project is not AFOLU project, and thus non-permanence risk analysis is not applicable for the project.

5 VERIFICATION CONCLUSION

Shenzhen CTI International Certification Co., Ltd (CTI) has performed the verification of the emission reductions that have been reported for the project activity "Chuanwei Group 24 MW Waste Gas Based Captive Power Plant" in China (VCS Project ID: 12) for the period 26/09/2011 to 17/07/2016.

The verification is based on the baseline and monitoring methodology ACM0002 (Version 06) and ACM0004 (version 02), the registered CDM PDD (version 06 dated 05/08/2008) and the monitoring report (version 02 dated 08/10/2020). The verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification and certification report.

The project proponents are responsible for the collection, calculation and determination of the GHG data in accordance with the revised monitoring plan approved by CDM EB and the reporting of GHG emission reductions on the basis set out within the project monitoring report.

Our verification approach was based on the requirements as defined under the applicable VCS Version 4 and relevant UNFCCC requirements. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- the project is implemented and operated as per the registered CDM PDD and the revised monitoring plan approved by CDM EB;
- the revised monitoring plan approved by CDM EB is as per the applied methodology;
- the monitoring complies with the revised monitoring plan approved by CDM EB;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Verion 4 and CDM requirements;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

It is CTI's responsibility to provide an independent verification statement on the reported GHG emission reductions for the project. Based on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these, CTI planned and performed our work to obtain the information and explanations that we considered necessary to provide reasonable assurance that reported GHG emission reductions are fairly stated.

CTI does not assume any responsibility towards the issuance and utilization of the VCUs hereby verified and certified. Request for issuance of VCUs shall be made by the project proponent to an approved VCS

Program Registry based on the requirements set out under the most recent version of the VCS Program Guidelines clause on VCS Registration.

The verification of reported emission reductions is based on the information made available to CTI and the engagement conditions detailed in this report. CTI cannot be held liable by any party for decisions made or not made based on this report.

In CTI's opinion the GHG emissions reductions of the "Chuanwei Group 24 MW Waste Gas Based Captive Power Plant" for the period 26/09/2011 to 17/07/2016 are fairly stated in the monitoring report (version 02 dated 08/10/2020). The GHG emission reductions were calculated correctly on the basis of the approved methodology ACM0004 (Version 02), ACM0002 (version 06) and the revised monitoring plan approved by CDM EB contained in the registered CDM PDD (version 06 dated 05/08/2008).

CTI can confirm that the GHG emission reductions are calculated without material misstatements. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CTI confirms the following statement:

Verification period: From 26/09/2011 to 17/07/2016

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
Total from 26/09/2011 - 31/12/2011	50584	837	0	49747
Total in 2012	200272	1,934	0	198338
Total in 2013	192996	940	0	192056
Total in 2014	189494	991	0	188503
Total in 2015	193806	1,176	0	192630
Total from 01/01/2016 - 17/07/2016	104869	728	0	104141
Total in this monitoring perod	**932,021**	**6,606**	**0**	**925,415**

Zhang Lei

Mr. Zhang Lei

Team Leader

11/11/2020

Wu Lin

Mr. Lin Wu

Technical Reviewer

11/11/2020

APPENDIX A: ABBREVIATIONS

CAR	Corrective Action Request
CER	Certified Emission Reduction(s)
CL	Clarification request
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CTI	Shenzhen CTI International Certification Co., Ltd
DOE	Designated Operational Entity
EF	Emission Factor
ER	Emission Reduction
ETN	Electricity Transaction Note
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
MP	MONITORING REPORT
MR	Monitoring Report
NWPG	Northwest Power Grid
PD	Project Description
PP	Project Proponent
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit

APPENDIX B: REFERENCES

Documentation used to verify the information provided by the project proponents

/1/ Goldchina Consultancy International Co., Ltd.: VER/VCU Monitoring Report for Chuanwei Group 24 MW Waste Gas Based Captive Power Plant, version 01 dated 29/02/2020 and version 02 dated 08/10/2020.

/2/ Goldchina Consultancy International Co., Ltd.: Emission reduction calculation spreadsheet for Chuanwei Group 24 MW Waste Gas Based Captive Power Plant, version 01 dated 29/02/2020 and version 02 dated 08/10/2020.

/3/ UNFCCC website: Registered CDM PDD, version 06 dated 05/08/2008.

/4/ Neijiang Xingming Energy Co., Ltd.: VER monitoring manual and management procedure.

/5/ Neijiang Xingming Energy Co., Ltd.: Records of training for on-site staff.

/6/ Neijiang Xingming Energy Co., Ltd.: Operation log sheets, from 26/09/2011 to 17/07/2016.

/7/ Neijiang Xingming Energy Co., Ltd.: Monthly reading records (MMRs) of Chuanwei Group 24 MW Waste Gas Based Captive Power Plant from 26/09/2011 to 30/06/2016. Meter reading records Of period 01/07/2016 to 17/07/2016.

/8/ Sichuan Provincial Chuanwei Group Company: Electricity Transaction Notes, from 26/09/2011 to 30/06/2016. Electricity Confirmation Note of period 01/07/2016 to 17/07/2016.

/9/ Sichuan Provincial Chuanwei Group Company: Natural Gas Transaction Notes, from 26/09/2011 to 17/07/2016. Natural Gas Confirmation Note of period 01/07/2016 to 17/07/2016.

/10/ UNFCCC website: revised MP approved by CDM EB on 01/07/2010.

/11/ Sichuan Neijiang Quality and Technical Supervision Bureau: Accreditation certificate of Sichuan Chuanwei Group Co., Ltd, issued on 30/07/2010, 27/06/2011 and 08/06/2016.

/12/ Sichuan Chuanwei Group Co., Ltd: Calibration certificates for meter 501, 502, 581 and 582 covering this monitoring period.

/13/ State Economic and Trade Commission: Technical administrative code of electric energy metering (DL/T 448-2016).

/14/ DET NORSKE VERITAS (DNV CERTIFICATION): the CDM Validation Report, version 02, dated 20/08/2008.

/15/ the VER/VCU monitoring report and corresponding Verification Report of the previous monitoring periods.

/16/ Neijiang Xingming Energy Co., Ltd.: nameplate of the equipment.

/17/ Neijiang Xingming Energy Co., Ltd.: Equipment Purchase Contract.

/18/ The CDM monitoring reports and the corresponding verification reports of the previous monitoring periods.

/19/ The Flow Meter Calibration Procedures (JJG198-1994)

/20/ Chongqing Baoyuansen Instrument Manufacturing Co., Ltd.: Calibration certificates for flow meter 0388 and 0892 covering this monitoring period.

/21/ Sichuan Neijiang Quality and Technical Supervision Bureau: Measurement standard assessment certificate of Chongqing Baoyuansen Instrument Manufacturing Co., Ltd., issued on 03/09/2007, 05/12/2011 and 05/12/2015.

Methodologies, tools and other guidance

/22/ Verified Carbon Standard: VCS Standard, version 4.0.

/23/ Verified Carbon Standard: VCS Program Guide, version 4.0.

/24/ Verified Carbon Standard: VCS Sectoral Scopes
http://v-c-s.org/node/448

/25/ Verified Carbon Standard: VCS Verification Representation, version 4.1.

/26/ Verified Carbon Standard: VCS Monitoring Report Template, version 4.0.

/27/ Verified Carbon Standard: VCS Verification Report Template, version 4.0.

/28/ Verified Carbon Standard: Registration and Issuance Process, version 4.0.

/29/ UNFCCC EB: Approved methodology, ACM0002, version 06

/30/ UNFCCC EB: Approved methodology, ACM0004, version 02

Persons interviewed

/31/ Site Visit Attendance List

APPENDIX C: CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS

Table 1: Corrective Action Requests

CAR ID	Corrective Action Request	Response by Project Proponent	Verification Team Assessment
NA	NA	NA	NA

Table 2: Clarification Requests

CL ID	Clarification Request	Response by Project Proponent	Verification Team Assessment
NA	NA	NA	NA

Table 3: Forward Action Requests

FAR ID	Forward Action Request	Response by Project Proponent	Verification Team Assessment
NA	NA	NA	NA