

**GOLD STANDARD FOR THE GLOBAL GOALS (GS4GG)
REPORT
-
VERIFICATION**



Project Title:	Suzhou Qizi Mountain Landfill Gas Recovery Project
Monitoring Period:	01/08/2020-21/04/2021
GS project ID:	397
Internal ID:	A+SH_SYST_GS_VER_10722
Customer:	South Pole Carbon Asset Management Ltd.
Date:	05/12/2023
Revision:	03

SUMMARY			
Reference No.	Date <i>(first version)</i>	Version No.	Date <i>(last version)</i>
A+SH_SYST_GS_VER_10722	08/03/2023	03	05/12/2023
GS4GG Verification			
GS4GG Certified Product <i>(sought):</i>		GHG Emission Reductions	
GS4GG SDG Impact Statement <i>(sought):</i>		Not Applicable	
General Information			
Client	South Pole Carbon Asset Management Ltd.		
Project Title	Suzhou Qizi Mountain Landfill Gas Recovery Project		
Project Participants	Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd.		
Project Location	Qizi Mountain, Mudu County, Wuzhong District, Suzhou City, Jiangsu province, P.R.China		
Contact Person	Hou Ning		
Monitoring Period:	01/08/2020-21/04/2021 (both dates inclusive)		
GS4GG Version: GS4GG Principles and Requirements Version 1.2 GS4GG Activity Requirements: Renewable Energy Activity Requirements Version 1.4 Applied Methodology Version: ACM0001 version 16.0 Current Methodology Version: ACM0001 version 19.0		GS4GG Sectoral Scope: 2 UNFCCC CDM Sectoral Scope: 1, 13 Technical Area: 1.1, 13.1	
Initial Monitoring Report Version: 1.0 Date: 14/12/2022		Final Monitoring Report Version: 2.0 Date: 30/11/2023	
Certified Project Design Document Version: 3.2 Date: 20/03/2017			
Estimated Annual Emission Reductions: 136,794 tCO ₂ e for 2 nd crediting period			
Indicator	Estimated Value	Actual Value	
SDG 7	18,076 MWh	12,320 MWh	
SDG 8	All the employees have access to training, health care, social insurances	20 jobs created (8 full-time and 12 part-time); The average salary is higher than lowest local level; all the employees have access to training, health care, social insurances.	
SDG 13	86,766 tCO ₂	67,246 tCO ₂	
Selected Sustainable Development Goals (SDGs): SDG 7; SDG 8; SDG 13			
Verification Summary			
LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by South Pole Carbon Asset Management Ltd. to perform the 8th periodical verification of Suzhou Qizi Mountain Landfill Gas Recovery Project (GS Ref. No. 397) applying the methodology ACM0001 Flaring or use of landfill gas version 16.0 (for 2 nd CP). The management of South Pole Carbon Asset Management Ltd. is responsible for the preparation of			

the GHG emissions data and the reported GHG emission reductions.

A desk review and follow-up onsite visit have been conducted to verify the data submitted in the monitoring report. Applus+ Certification confirms the following has been reviewed:

- (a) Monitoring report (s) /01/;
- (b) ER calculation spreadsheet /02/;
- (c) The registered GS PDD /03/ and the corresponding validation report /04/;
- (d) The approved renewed GS PDD for 2nd CP /05/ and the corresponding validation report /06/;
- (e) Transition Annex /09/;
- (f) The approved renewed GS4GG PDD for 3rd CP /07/ and the corresponding validation report /08/;
- (g) Monitoring reports and the corresponding verification reports of previous monitoring period /10/;
- (h) The applied monitoring methodology /14/;
- (i) Relevant decisions, clarifications and guidance from the CMP;
- (j) The GS4GG Principles and Requirements Version 1.2 /11/;
- (k) The Renewable Energy Activity Requirements Version 1.4 /12/;
- (l) The GHG emission reduction & sequestration product requirements version 2.1 /13/.

All information and references relevant to the project activity's resulting in emission reductions. The report describe a total number of findings which include:

- 3 Corrective Action Requests (CARs);
- 1 Clarification Requests (CLs/CRs);
- 0 Forward Action Requests (FARs).

The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the verification process, the concerns raised and responses given are summarized in Appendix 1 below.

Suzhou Qizi Mountain Landfill Gas Recovery Project (hereafter referred to as "the project" or "the project activity") is a landfill gas recovery and power generation project located at Qizi Mountain Landfill, Suzhou, Jiangsu Province, China, of which the main purpose is to use landfill gas for electricity generation. The total installed capacity of the project activity is 5 MW consisting of 4 set of 1250 kW generators, with 2 phase of implementation. Among these 4 generators, 2 generators started construction in November 2005 and started operation on 01/01/2007, 1 generator started construction in August 2007 and started operation in September 2008 and 1 generator is still under plan. The project was expected to generate 17,136 MWh per year on average during the crediting period, offsetting an equivalent amount that would be otherwise supplied by the East China Power Grid (ECPG). The electricity generated by the project would first be transferred to the distribution and controlling system and then connected to the Suzhou City local power grid which is part of East China Power Grid (ECPG). By displacing part of the power generated by thermal power plants and by avoiding GHG emissions from releasing LFG into atmosphere at the landfill site, the project is therefore expected to reduce CO₂ emissions with an estimated 136,794 tCO₂e per year during the 2nd crediting period.

Applus+ Certification confirms that the project is implemented in accordance with the validated and approved renewed PDD for 2nd crediting period /05/. The monitoring plan complies with the applied methodology ACM0001 Flaring or use of landfill gas version 16.0 (for 2nd CP) /14/, the GS4GG Principles and Requirements Version 1.2 /11/, the Renewable Energy Activity

Requirements Version 1.4 /12/, and the monitoring has been carried out in accordance with the monitoring plan. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information reviewed and evaluated Applus+ Certification confirms that the implementation of the project has resulted in 67,246 tCO₂e emission reductions during period 01/08/2020 to 21/04/2021.

ASSESSMENT TEAM	
Team Members	Organization
Lead Auditor: Doris Dai	Applus+ Certification
Auditor / Technical Expert: Doris Dai	Applus+ Certification
Technical Reviewer: Simon Shen	Applus+ Certification

ABBREVIATIONS	
ACM	Approved Consolidated Methodology
AM	Approved Methodology
AMS	Approved Methodology Small Scale
Applus+ Certification / Applus+	LGAI Technological Center, S.A. (Applus+)
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CL / CR	Clarification Request
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GS4GG (or GS)	Gold Standard for Global Goals
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-Governmental Organization
SDG	Sustainable Development Goal
TAC	Gold Standard Technical Advisory Committee
PDD	Project Design Document
PP	Project Participant
UNFCCC	United Nations Framework Convention for Climate Change
VVB	Validation and Verification Body
VVS	Validation and Verification Standard

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1. INTRODUCTION

1.1 Objective

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by South Pole Carbon Asset Management Ltd. to perform the 8th periodical verification of Suzhou Qizi Mountain Landfill Gas Recovery Project (GS Ref. No. 397) applying the methodology ACM0001 Flaring or use of landfill gas version 16.0 (for 2nd CP), the GS4GG Principles and Requirements Version 1.2, the Renewable Energy Activity Requirements Version 1.4. Gold Standard projects must undergo periodic audits and verification of emission reductions as the basis for issuance of Gold Standard VERs.

The objective of the verification work is to comply with the GS4GG Principles and Requirements Version 1.2. According to this assessment Applus+ Certification shall:

- ensure that the project activity "Suzhou Qizi Mountain Landfill Gas Recovery Project" has been implemented and operated as per the approved renewed GS PDD for the 2nd crediting period (version 3.2 dated 20/03/2017), and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place;
- ensure that the final MR and other supporting documents provided are complete, verifiable and in accordance with applicable VVS and Gold Standard requirements;
- ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology;
- evaluate the data recorded and stored as per GS Methodology "ACM0001 Flaring or use of landfill gas version 16.0 (for 2nd CP)".

1.2 Scope

The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the VVB. The verification is based on the submitted monitoring report, the validated and registered renewed GS4GG PDD as well as its validation report, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the EB, the GS4GG Principles and Requirements Version 1.2, the Renewable Energy Activity Requirements Version 1.4, and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, the Gold Standard for Global Goals and related rules and guidance.

Based on the rules defined by GS4GG, as appropriate to the PA, Applus+ Certification has applied a rule-based approach for the verification of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion.

The verification considers both quantitative and qualitative information on emission reductions. The verification also considers the monitoring of sustainable parameters.

The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

1.3 Description of the project activity

Project activity: Suzhou Qizi Mountain Landfill Gas Recovery Project

Gold Standard registration number: 397

Project Participants: Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. (Project Owner)

Location of the project: Geographic coordinates (Verified through Google Earth): 31°14'15"N, 120°33'9"E

Date of registration: 22/04/2009

Starting date of the crediting period: 22/04/2014 (2nd crediting period)

The project is a landfill gas recovery and power generation project located at Qizi Mountain Landfill, Suzhou, Jiangsu Province, China, of which the main purpose is to use landfill gas for electricity generation. The total installed capacity of the project activity is 5 MW consisting of 4 set of 1250 kW generators, with 2 phase of implementation. Generator I and II started construction in November 2005 and started operation on 01/01/2007. Generator III started construction in August 2007 and started operation in September 2008. The fourth generator is still under plan. The project was expected to generate 17,136 MWh per year on average during the crediting period, offsetting an equivalent amount that would be otherwise supplied by the East China Power Grid (ECPG). The electricity generated by the project would first be transferred to the distribution and controlling system and then connected to the Suzhou City local power grid which is part of East China Power Grid (ECPG). By displacing part of the power generated by thermal power plants and by avoiding GHG emissions from releasing LFG into atmosphere at the landfill site, the project is therefore expected to reduce CO₂ emissions with an estimated 136,794 tCO₂e per year during the 2nd crediting period.

2. METHODOLOGY

Applus+ Certification's approach to the verification is a two-stage process.

In the 1st stage, Applus+ Certification completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the monitoring report.

Applus+ Certification used a periodical Verification Checklist which, based on the risk-based assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

In the 2nd stage, using the Verification Checklist, Applus+ Certification verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved a site visit (if applicable) and a desk review of the Monitoring Report. This Verification Report describes the findings of this assessment.

2.1 Appointment of the assessment team

According to the sectoral scope / technical area and experience in the sectoral or national business environment, Applus+ Certification has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of Applus+ Certification.

The composition of audit team shall be approved by the Applus+ Certification ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial aspect
Doris Dai	LA/TE	1/13	1.2/13.1	NA
Simon Shen	TR	1/13	1.2/13.1	NA

The curricula vitae of the VVB's validation team members are provided below:

Doris Dai (Master's Degree in Environmental Sciences, Bachelor's Degree in Environmental Technology) is an Auditor appointed by Applus+ LGAI for the GHG project assessment and auditing. She has more than 6 years of work experience in CDM/VCS project assessment and more than 2 years of work experience in GS4GG project assessment. Before she joined Applus+ LGAI, she has been working for CTI Certification as senior GHG Auditor for 3.5 years.

Simon Shen (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) has been appointed as a Technical Reviewer by Applus+ Certification for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ Certification, he had been worked for TÜV SÜD as a GHG Validator/Verifier and ISO 9001/14001 Lead Auditor for 3.5 years.

2.2 Document review

The Monitoring Report version 01 was submitted to VVB before the verification activities started. The MR was assessed based on all the relevant documents. The aim of the assessment in the desk review was to:

- verify the completeness of the data and the information presented in the MR;
- check the compliance of the MR with respect to the monitoring plan depicted in the approved renewed GS PDD, verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures was paid;
- evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

A complete list of documents reviewed is available in chapter 5 of this report.

2.3 Site assessment and follow up interviews

A site visit was conducted on 05/01/2023-06/01/2023, the objective of the assessment is to:

- confirm the implementation and operation of the project;
- review the data flow for generating, aggregating and reporting the monitoring parameters;
- confirm the correct implementation of procedures for operations and data collection;
- cross-check the information provided in the MR documentation with other sources;
- check the monitoring equipment against the requirements of the approved renewed GS PDD and the approved methodology, including calibrations, maintenance, etc.;
- review the calculations and assumptions used to obtain the GHG data and ER;
- identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Liu	Zhaofeng	Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. /Manager	05/01/2023 - 06/01/2023	- General aspects of the project - Changes since validation / previous verifications	Doris Dai
2.	Huang	Huarui	Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. /Staff	05/01/2023 - 06/01/2023	- Calibration procedures - Power generation situation - Quality management system	
3.	Yang	Shuaiqi	Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. /Staff	05/01/2023 - 06/01/2023	- Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan	
4.	Wang	Bin	Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. /Staff	05/01/2023 - 06/01/2023	- Monitoring data management - Data uncertainty and residual risks - Procedural aspects of the verification	

5.	Wang	Lie	Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. /Staff	05/01/2023 - 06/01/2023	- Maintenance - Environmental aspects - Employment - Air quality - human and institutional capacity - Water quantity - Other pollutant	
6.	Zhang	Chun	Land fill station /Staff	06/01/2023	- waste collection - Management of landfill site - LFG collected and utilized	Doris Dai
7.	Yu	Longmei	Gusu Village/local Resident	06/01/2023	- Employment - Air quality - human and institutional capacity - Water quantity - Other pollutant	Doris Dai
8.	Lu	Yunnan	Gusu Village/local Resident	06/01/2023		
9.	Gao	Yueming	Huchiyuan Community/local Resident	06/01/2023		
10.	Zhu	Junjie	Director/Local Environmental Protection Bureau	06/01/2023		
11.	Hou	Ning	Project Manager	06/01/2023	- Data collection and ER calculation	Doris Dai

During the on-site assessment, the verifier has randomly selected operation staffs from project implementer and local stakeholders as above table to confirm that the correctness of the project SDG and Safeguarding Principle monitoring data and information reported by the PP. The questions asked were basically based on requirements of the GS4GG and MR description. The main topics included, but not limited to, the followings:

- Air quality: Odour, LFG has been recovered to generate electricity
- Water quality: Wastewater treatment
- Human and institutional: training records, working certificate
- Employment: Employment records, job opportunities, working conditions
- Livelihood of the poor: salary level, welfare, charitable activities
- Other pollutants (noise): noise level, impact to residents

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

SD indicator / safeguarding principles monitoring parameter	Questions staffs/stakeholders for during the site interviews	Summary of feedback
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SD indicator / safeguarding principles monitoring parameter	Questions staffs/stakeholders the site interviews during	Summary of feedback
Air quality	1. Do you think the odours (smell) is reduced after the project implementation?	Project owner representatives: The odour is reduced after the implementation of the project. The air quality is in compliance with relevant national standard GB 16297-1996 and GB 14554-1993.
	2. Do you think the air quality is improved after the implementation of the project?	Local Stakeholders: The odour is improved after the implementation of the project.
Water quality	3. How is the landfill leachate treated?	Project owner representatives: The landfill leachate is collected and transported to Suzhou Gaoxin wastewater treatment plant.
	4. How about the quality of wastewater, does it meet the national standard?	Project owner representatives: the wastewater satisfied with national standard GB/T 14848-2017.
	5. Do you know the wastewater are monitored by the local authority?	Interviewed staff: Yes. Wastewater are monitored by Environment Monitoring station periodically. Local Stakeholders: Yes. Wastewater from enterprises in China are monitored by Environment Monitoring station periodically.
Human and institutional capacity	6. Do you think sufficient trainings have been provided to the staff?	Project owner representatives: The staffs have accepted a series of training on the plant operation technology, safety, monitoring, environment protection, emergency, maintenance, which contributes to the quality of employment. The training records was prepared and achieved. The staffs are qualified and have got the working certificate. Interviewed staff: All the staff have confirmed receiving the relevant trainings, and got the valid working certificate.
Employment	7. Do you think that this project offers opportunities for employment?	Project owner representatives: Creating 8 full-time job opportunities and 12 part-time job opportunities for local people during operational period. Interviewed staff: yes, 8 long-time jobs. Local Stakeholder: job opportunities are provide to local residents.
	8. Do you think the working condition is safe and healthy?	Project owner representatives: Yes. The safe and healthy working condition has been provided to the staff. All working places, such as the control room, the office, employee dormitory, are open to the verifier for checking. Interviewed staff: yes, it's safe and healthy.

SD indicator / safeguarding principles monitoring parameter	Questions staffs/stakeholders the site interviews for during	Summary of feedback
Livelihood of the poor	9. How about the income level of the staff?	Project owner representatives: The average salary of employees is above lowest local value. Interviewed staff: The salary level is higher than lowest local level. Local Stakeholder: much higher than local lowest level.
	10. Are you satisfied with your salary?	Interviewed staff: yes.
	11. Have social insurance, housing fund and regular physical examination been provided?	Project owner representatives: The social security and housing fund have been provided. Physical examination has been provided once a year. Interviewed staff: The social insurance and housing fund have been provided. Physical examination has been provided once a year.
	12. What kind of charitable activities have been conducted?	Project owner representatives: held birthday parties for the disabled, lectures on garbage sorting, love activities for children of migrant workers, and sending heat relief products to sanitation workers etc. Interviewed staff: held birthday parties for the disabled, lectures on garbage sorting, love activities for children of migrant workers, and sending heat relief products to sanitation workers etc. Local Stakeholders: held birthday parties for the disabled, lectures on garbage sorting, love activities for children of migrant workers, and sending heat relief products to sanitation workers etc.
Other pollutants	13. How about the noise level?	Project Owner: The noise level is in compliance with relevant national standard GB 12348-2008. Interviewed staff: not noisy and noise level is monitored by Environment Monitoring station periodically.
	14. Are you affected by the noises of the project?	Interviewed staff: not affected. Local stakeholders: not affected.

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

2.4 Sampling approach

N.A.

2.5 Quality of evidences

Sufficient evidence covering the full verification period in the required frequency is available to verify the figures stated in the final MR. The source of the evidences will be discussed in section 3 of this report. Specific cross-checks have been done in cases that further sources were available. The monitoring report's figures were checked by the assessment team against the raw data. The data collection system meets the requirements of the monitoring plan as per the methodology.

2.6 Reporting of findings

As an outcome of the verification process, the assessment team can raise different types of findings.

Where a non-conformance arises the assessment team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- d) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

The assessment team shall raise a Clarification Request (CR) if information is insufficient or not clear enough to determine whether the applicable GS requirements have been met.

All CARs and CRs raised during verification shall be resolved prior to submitting a request for issuance.

Forward Action Requests (FARs) may be raised during verification for actions where the monitoring and reporting require attention and/or adjustment for the next verification period.

The report describe a total number of findings which include:

- 3 Corrective Action Requests (CARs);
- 1 Clarification Requests (CLs/CRs);
- 0 Forward Action Requests (FARs).

All CARs, CRs and FARs for this verification period are included in chapter 4 of the report.

2.7 Internal Quality Control

As a final step of verification, the final documentation including the verification report have to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the VVB's Technical Manager or the Deputy. In case one of these two persons is part of the assessment team, the approval can only be given by the person who is not a part of the assessment team. If the documents have been satisfactorily approved, the Request for Issuance is submitted to the GS Registry along with the relevant documents.

3. **VERIFICATION FINDINGS**

In the following sections, the results of the verification are stated. The verification results related to the project performance as documented and described in the approved renewed GS PDD for the 2nd crediting period (version 3.2 dated 20/03/2017) /05/ and Monitoring Report (version 2.0 dated 30/11/2023) /01/. The verification findings for each verification subject are presented below.

3.1 **FARs from Validation / Previous Verification**

As this is the 8th periodical verification, after checking validation and verification reports, it is confirmed that no FARs is requested.

3.2 **Project Implementation in accordance with the registered Project Design Document**

The project activity was fully implemented according to the description presented in approved renewed GS PDD for the 2nd crediting period (version 3.2 dated 20/03/2017) /05/. The assessment team confirms, through the site visit that all physical features of the project activity including data collecting systems and storage have been implemented in accordance with the approved renewed GS PDD for the 2nd crediting period (version 3.2 dated 20/03/2017) /05/. The technical features of the equipments have been verified by the assessment team during site visit by checking nameplate of main equipment which is detailed listed below:

Manufacture	Deutz Power Systems GmH&Co.,KG
Name	Engine
Type	TBG620V16K
Installed capacity	1294KW
Technical description	Modern stationary 4-stroke Otto gas engine with lean-mix combustion; 16 cylinder V-engine

Manufacture	AVK Deutschland GmbH & Co.KG
Name	Generator
Type	DIG 120 i/4
Installed capacity	1250KW
Technical description	Rotary current internal pole synchronous generator. Three phase, brushless, self-exciting, self regulating

Manufacture	Deutz Power Systems GmH&Co.,KG
Name	TEM EVO System
Technical description	The DEUTZ Total Electronic Management (TEM) system includes the control and monitoring of all functions of a gas engine auxiliary drive in one unit.

The project activity was in normal operational and the same has been confirmed by on-site interview. By checking verification reports of previous monitoring period, as well as interview PP during site visit, it is confirmed that 2 generators started construction in November 2005 and operation on 01/01/2007, 1 generator started construction in August 2007 and operation in September 2008, and 1 generator was under plan up to the date of site visit on 05/01/2023 to 06/01/2023. As confirmed with PP, the installed generators, i.e. 3#, 4# and 5# are sufficient to

combust all the landfill gas generated and generator 4# is still under plan up to the date of site visit. All these have been confirmed via on-site visit and checking verification reports of previous monitoring period.

The project was registered at 22/04/2009 under GS scheme as confirmed by the mail sent by Gold Standard. The electricity power generated by the project activity is supplied to ECPG, which has been verified by on-site physical inspection and checking Electricity Receipts issued by local grid /35/. Moreover, the Verification Team has verified the location of the installed equipment and also checked the metering system, found that the installed equipment and metering system are in place and fully consistent with the approved renewed GS PDD for the 2nd crediting period /05/.

By checking operation logbook /16/, it is confirmed that no changes were observed during the on-site visit on the physical and spatial configuration of the project. By checking operation logbook /16/, the Verification Team is able to confirm that there was no special event besides downtimes of the generators occurred during this monitoring period.

The Project applies 3*7 renewable crediting period. The 1st CP is from 22/04/2007 to 21/04/2014, the 2nd CP is from 22/04/2014 to 21/04/2021 and the 3rd CP is from 22/04/2021 to 21/04/2028. This monitoring period is from 01/08/2020 to 21/04/2021, which is within 2nd CP.

The emission reductions achieved during the current monitoring period are 67,246 tCO₂e within the estimated quantity (86,766 tCO₂e) in the approved PDD for 2ndCP for the comparable period.

In conclusion, in view of the information's verified during site visit, the assessment team is able to confirm that:

- All physical features (technology, project equipment, and monitoring and metering equipment) of the approved GS4GG project activity are in place and that the project participants have operated the project activity as per the approved PDD for 2nd CP /05/.
- The monitoring system including the measurement of parameters, data collection and archiving was also implemented and operated inline to the approved PDD for 2nd CP /05/.
- The project contributes to the sustainable development which includes, but not limited to, enhance air quality, creating job opportunities and provided salary higher than local lowest level, provided social insurance and periodical physical examination, provided trainings and many other benefits to the local residents.
- The emission reduction was achieved in compliance with applied GS methodology and the approved PDD for 2nd CP /05/. No information with regard to data and variables was identified that may surpass the estimated quantity of ERs in the approved PDD for 2nd CP /05/.
- There's no post registration change has been occurred during this monitoring period.

3.3 Compliance of the Monitoring Plan with the Monitoring Methodology

The monitoring plan is in accordance with the approved methodology ACM0001 Flaring or use of landfill gas version 16.0 (for 2nd CP) /14/, applied by the proposed GS project activity. No deviation, correction or permanent change to the monitoring plan has been requested.

Compliance of the monitoring activities related to parameters used in the emission reduction calculations were already verified during the site visit. The monitoring plan outlined in the approved PDD for 2nd CP /05/ is in accordance with the applied GS methodology "ACM0001 Flaring or use of landfill gas version 16.0 (for 2nd CP) /14/ and correctly applied by the approved GS4GG project activity. During the site visit, the assessment team has verified the sustainability of the monitoring plan and found to be in compliance with the approved PDD for 2nd CP /05/.

The monitoring plan outlined in the approved PDD for 2nd CP /05/ is in accordance with the applied GS methodology and correctly applied by the project activity.

3.4 Completeness of Data and parameters monitored

GHG parameters:

Relevant SDG Indicator	SDG 13 – Climate Action SDG indicator 13.2.2 Total greenhouse gas emissions per year
Data/parameter:	Management of SWDS
Unit	/
Description	Management of SWDS
Measured/calculated/default	Measured
Source of data	Management Manual of Qizi Mountain Landfill /17/
Value(s) of monitored parameter	/
Information Flow	By checking Management Manual of Qizi Mountain Landfill /17/ and interview with PP during site visit, it is confirmed that no change in the management of the SWDS after the implementation of the project activity was identified during this monitoring period.
Monitoring equipment	Not applicable.
Calibration	Not applicable
Measuring/reading/recording frequency:	As per the approved renewed PDD /05/, the value is monitored once a year.
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Purpose of data:	Calculation of emission reductions
Additional comments:	Not applicable
Means of verification:	Data of the parameter was verified by checking Management Manual of Qizi Mountain Landfill and interview with PP during site visit. The data in the MR is in line with the data source; Information flow was verified by checking Management Manual of Qizi Mountain Landfill, and all information are consistent; Monitoring method was verified by site visit, checking Management Manual of Qizi Mountain Landfill, all monitoring method meets the description in the approved PDD.

Relevant SDG Indicator	SDG 13 – Climate Action SDG indicator 13.2.2 Total greenhouse gas emissions per year
Data/parameter:	Laws and regulations about waste management system in China
Unit	/
Description	Relevant laws and regulations about solid waste management system in China will be monitored yearly. When there are relevant changes, the

	baseline scenario or monitor plan will change accordingly.
Measured/calculated/default	/
Source of data	Publicly available data resources, i.e. renewable Energy Law of the People's Republic of China /31/; National Action plan for the collection and Utilization of municipal landfill gas /32/; Catalogue for the Guidance of Industrial Structure Adjustment (2019 version) /33/
Value(s) of monitored parameter	/
Information Flow	As per monitoring plan in the approved PDD for CP2, the law and regulations about the waste management system need to be monitored. In case where a specific system for collection and destruction of methane is mandated by regulatory or contractual requirements, the ratio of the destruction efficiency of the baseline system to the destruction efficiency of the system used in the project activity shall be used. By checking Management Manual of Qizi Mountain Landfill /17/ and interview with PP during site visit, it is confirmed that no change in the management of the SWDS after the implementation of the project activity was identified during this monitoring period. By checking the publicly available data resources /31//32//33/, the verification team is able to confirm that regulations has not changed during this monitoring period.
Monitoring equipment	Not applicable
Calibration	Not applicable
Measuring/reading/recording frequency:	As per the approved renewed PDD for CP2 /05/, the value is monitored once a year.
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Purpose of data:	Calculation of emission reductions
Additional comments:	Not applicable
Means of verification:	Data of the parameter was verified by checking publicly available data resources and interview with PP during site visit. The data in the MR is in line with the data source; Information flow was verified by checking publicly available data resources, and all information are consistent; Monitoring method was verified by site visit, checking publicly available data resources, all monitoring method meets the description in the approved PDD.

Relevant SDG Indicator	SDG 13 – Climate Action SDG indicator 13.2.2 Total greenhouse gas emissions per year
Data/parameter:	LFG _{electricity,y}
Unit	m ³
Description	Amount of landfill gas combusted in power plant at Normal Temperature

	and Pressure															
Measured/calculated/default	Measured															
Source of data	Monthly Report /19/															
Value(s) of monitored parameter	01/08/2020-31/12/2020: 7,477,979 01/01/2021-21/04/2021: 2,967,378 Total: 10,445,357															
Information Flow	This parameter was continuously monitored by 2 flow meters installed between gas pre-treatment and generators. The meter readings were hourly recorded in Daily Report /18/ and monthly aggregated in Monthly Report /24/. The data in Daily Report and Monthly Report have been sent to the Consultant for reporting of GHG emission reduction.															
Monitoring equipment	flow meters, which have been confirmed through site visit.															
Calibration	By checking the Calibrated Certification of flow meters /20/, the calibration information are verified by the assessment team and shown as below: <table><tr><td>Type:</td><td>CD2A02A1AB1H2(0-6)kPa(4-20)m</td><td>454FT-12-MTDN200</td></tr><tr><td>Serial number:</td><td>01965563</td><td>FD21246A</td></tr><tr><td>AccuracyClass:</td><td>0.5</td><td>0.5</td></tr><tr><td>Calibration date:</td><td>22/01/2020 19/01/2021</td><td>22/01/2020 19/01/2021</td></tr><tr><td>Validity date:</td><td>21/01/2021 18/01/2022</td><td>21/01/2021 18/01/2022</td></tr></table> The calibration was conducted by Suzhou Institute of Metrology, which is accredited by Quality and Technical Supervision Bureau of Jiangsu Province /26/, valid from 20/06/2018 to 19/06/2023.	Type:	CD2A02A1AB1H2(0-6)kPa(4-20)m	454FT-12-MTDN200	Serial number:	01965563	FD21246A	AccuracyClass:	0.5	0.5	Calibration date:	22/01/2020 19/01/2021	22/01/2020 19/01/2021	Validity date:	21/01/2021 18/01/2022	21/01/2021 18/01/2022
Type:	CD2A02A1AB1H2(0-6)kPa(4-20)m	454FT-12-MTDN200														
Serial number:	01965563	FD21246A														
AccuracyClass:	0.5	0.5														
Calibration date:	22/01/2020 19/01/2021	22/01/2020 19/01/2021														
Validity date:	21/01/2021 18/01/2022	21/01/2021 18/01/2022														
Measuring/reading/recording frequency:	Continuously measured and hourly recorded															
Calculation method (if applicable):	Not applicable															
QA/QC procedures:	Monitoring equipments are tested and maintained in accordance with the relevant technical codes. Data record will be archived for a period of 2 years after the crediting period to which the records pertain.															
Purpose of data:	Calculation of emission reductions															
Additional comments:	Not applicable															
Means of verification:	Data of the parameter in the monitoring report have been verified through checking Monthly Report, and it was verified that all data is in line with Monthly Report; Information flow was verified by checking Monthly Report, and all information are consistent; Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the approved PDD;															

	Calibration was verified by checking calibration certificate, all calibration of monitoring equipment meets the requirement indicated in the approved PDD.
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Relevant SDG Indicator	SDG 13 – Climate Action SDG indicator 13.2.2 Total greenhouse gas emissions per year
Data/parameter:	W _{CH₄}
Unit	m ³ CH ₄ /m ³ LFG
Description	Methane fraction in the landfill gas
Measured/calculated/default	Measured
Source of data	Monthly Report /24/
Value(s) of monitored parameter	01/08/2020-31/12/2020: 40.01% 01/01/2021-21/04/2021: 24.79%
Information Flow	This parameter was continuously monitored by methane analyzer. The readings of methane analyzer were hourly recorded in Daily Report /18/ and monthly aggregated in Monthly Report /24/. The data in Daily Report and Monthly Report have been sent to the Consultant for reporting of GHG emission reduction.
Monitoring equipment	methane analyzer, which has been confirmed through site visit.
Calibration	By checking the Calibrated Certification of methane analyzer /21/, the calibration information are verified by the assessment team and shown as below: Type: Gas board-3200L Serial number: 11112050901161825249 AccuracyClass: 0.5 Calibration date: 22/01/2020 18/01/2021 Validity date: 21/01/2021 17/01/2022 The calibration was conducted by Suzhou Institute of Metrology, which is accredited by Quality and Technical Supervision Bureau of Jiangsu Province /26/, valid from 20/06/2018 to 19/06/2023.
Measuring/reading/recording frequency:	Continuously measured and hourly recorded
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Monitoring equipment is tested and maintained in accordance with the relevant technical codes. Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Purpose of data:	Calculation of emission reductions
Additional comments:	Not applicable

Means of verification:	Data of the parameter in the monitoring report have been verified through checking Monthly Report, and it was verified that all data is in line with Monthly Report; Information flow was verified by checking Monthly Report, and all information are consistent; Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the approved PDD; Calibration was verified by checking calibration certificate, all calibration of monitoring equipment meets the requirement indicated in the approved PDD.
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Relevant SDG Indicator	SDG 13 – Climate Action SDG indicator 13.2.2 Total greenhouse gas emissions per year																	
Data/parameter:	T																	
Unit	°C																	
Description	Temperature of the landfill gas																	
Measured/calculated/default	Measured																	
Source of data	Daily Report /18/																	
Value(s) of monitored parameter	01/08/2020-31/12/2020: 38 01/01/2021-21/04/2021: 22																	
Information Flow	This parameter was continuously monitored by temperature meters installed between gas pretreatment and generators. The readings of temperature meters were hourly recorded in Daily Report /18/. The data in Daily Report have been sent to the Consultant for reporting of GHG emission reduction.																	
Monitoring equipment	temperature meters, which have been confirmed through site visit.																	
Calibration	By checking the Calibrated Certification of temperature meters /22/, the calibration information are verified by the assessment team and shown as below: <table><tr><td>Type:</td><td>WSS(-40-80)°C</td><td>WSS(-40-80)°C</td></tr><tr><td>Serial number:</td><td>01</td><td>02</td></tr><tr><td>AccuracyClass:</td><td>1.5</td><td>1.5</td></tr><tr><td>Calibration date:</td><td>03/03/2020 25/02/2021</td><td>03/03/2020 25/02/2021</td></tr><tr><td>Validity date:</td><td>02/03/2021 24/02/2022</td><td>02/03/2021 24/02/2022</td></tr></table> The calibration was conducted by Suzhou Institute of Metrology, which is accredited by Quality and Technical Supervision Bureau of Jiangsu Province /26/, valid from 20/06/2018 to 19/06/2023.			Type:	WSS(-40-80)°C	WSS(-40-80)°C	Serial number:	01	02	AccuracyClass:	1.5	1.5	Calibration date:	03/03/2020 25/02/2021	03/03/2020 25/02/2021	Validity date:	02/03/2021 24/02/2022	02/03/2021 24/02/2022
Type:	WSS(-40-80)°C	WSS(-40-80)°C																
Serial number:	01	02																
AccuracyClass:	1.5	1.5																
Calibration date:	03/03/2020 25/02/2021	03/03/2020 25/02/2021																
Validity date:	02/03/2021 24/02/2022	02/03/2021 24/02/2022																
Measuring/reading/recording frequency:	Continuously measured and hourly recorded																	
Calculation method (if applicable):	Not applicable																	

QA/QC procedures:	Monitoring equipments are tested and maintained in accordance with the relevant technical codes. Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Purpose of data:	Calculation of emission reductions
Additional comments:	Not applicable
Means of verification:	Data of the parameter in the monitoring report have been verified through checking Monthly Report, and it was verified that all data is in line with Monthly Report; Information flow was verified by checking Monthly Report, and all information are consistent; Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the approved PDD; Calibration was verified by checking calibration certificate, all calibration of monitoring equipment meets the requirement indicated in the approved PDD.

Relevant SDG Indicator	SDG 13 – Climate Action SDG indicator 13.2.2 Total greenhouse gas emissions per year		
Data/parameter:	P		
Unit	KPa		
Description	Pressure of the landfill gas		
Measured/calculated/default	Measured		
Source of data	Daily Report /18/		
Value(s) of monitored parameter	01/08/2020-31/12/2020: 108.025 01/01/2021-21/04/2021: 108.025		
Information Flow	This parameter was continuously monitored by pressure meters installed between gas pretreatment and generators. The readings of pressure meters were hourly recorded in Daily Report /18/. The data in Daily Report have been sent to the Consultant for reporting of GHG emission reduction.		
Monitoring equipment	pressure meters, which have been confirmed through site visit.		
Calibration	By checking the Calibrated Certification of pressure meters /23/, the calibration information are verified by the assessment team and shown as below:		
	Type:	YE-100(0~25)kPa	YE-100(0~25)kPa
	Serial number:	110623626	110623628
	AccuracyClass:	2.5	2.5
	Calibration date:	02/03/2020 28/08/2020 25/02/2021	02/03/2020 28/08/2020 25/02/2021
	Validity date:	01/09/2020 27/02/2021	01/09/2020 27/02/2021

	24/08/2021	24/08/2021
	The calibration was conducted by Suzhou Institute of Metrology, which is accredited by Quality and Technical Supervision Bureau of Jiangsu Province /26/, valid from 20/06/2018 to 19/06/2023.	
Measuring/reading/recording frequency:	Continuously measured and hourly recorded	
Calculation method (if applicable):	Not applicable	
QA/QC procedures:	Monitoring equipments are tested and maintained in accordance with the relevant technical codes. Data record will be archived for a period of 2 years after the crediting period to which the records pertain.	
Purpose of data:	Calculation of emission reductions	
Additional comments:	Not applicable	
Means of verification:	Data of the parameter in the monitoring report have been verified through checking Monthly Report, and it was verified that all data is in line with Monthly Report; Information flow was verified by checking Monthly Report, and all information are consistent; Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the approved PDD; Calibration was verified by checking calibration certificate, all calibration of monitoring equipment meets the requirement indicated in the approved PDD.	

Relevant SDG Indicator	SDG 13 – Climate Action SDG indicator 13.2.2 Total greenhouse gas emissions per year
Data/parameter:	Operation of the energy plant
Unit	Hours
Description	Operation of the energy plant
Measured/calculated/default	Measured
Source of data	Monthly Report /19/
Value(s) of monitored parameter	3# (01/08/2020 to 21/04/2021): 5,990 4# (01/08/2020 to 21/04/2021): 3,494 5# (01/08/2020 to 21/04/2021): 6,083
Information Flow	This parameter was hourly measured by TEM EVO System Once the generator is downtime, the counter stops counting automatically. Through the onsite visit and checking the operation logbook /16/, the verification team confirms that the TEM EVO system operates smoothly during the proposed monitoring period. The cumulative values were aggregated in Monthly Report. The data in Monthly Report have been sent to the Consultant for reporting of GHG emission reduction.
Monitoring equipment	TEM EVO System, which have been confirmed through site visit.
Calibration	Not applicable
Measuring/reading/recording	Hourly measured and monthly recorded

frequency:	
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Purpose of data:	Calculation of emission reductions
Additional comments:	Not applicable
Means of verification:	Data of the parameter in the monitoring report have been verified through checking Monthly Report, and it was verified that all data is in line with Monthly Report; Information flow was verified by checking Monthly Report, and all information are consistent; Monitoring method was verified by site visit, all monitoring method meets the description in the approved PDD.

Relevant SDG Indicator	SDG 13 – Climate Action SDG indicator 13.2.2 Total greenhouse gas emissions per year
Data/parameter:	$R_{LFG,y}$
Unit	/
Description	The ratio between the LFG collected and the LFG used within the engines on average each year
Measured/calculated/default	Measured
Source of data	Layout of the entire collection pipelines /34/
Value(s) of monitored parameter	Close to 100%, at least 65%
Information Flow	By checking actual layout of the entire collection pipelines /34/, it is confirmed that the collection pipeline covers the well to electricity generator and to flare which is used for emergency purpose. By checking operation logbook /16/, it is confirmed that no emergency was happened during this monitoring period and the flare was not used. Therefore, it is confirmed that all the collected LFG has been used to electricity generation. Besides, during the on-site visit, it is confirmed that no other pipelines were connected to the project site, which indicates that no LFG was used for other purpose than electricity generation or directly venting to the atmosphere. Thus it is confirmed that $R_{LFG,y}$ is close to 100% which meets the requirement of Gold Standard, i.e. at least higher than 65%. The data in Monthly Report have been sent to the Consultant for reporting of GHG emission reduction.
Monitoring equipment	Not applicable
Calibration	Not applicable
Measuring/reading/recording frequency:	Not applicable
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Not applicable

Purpose of data:	Calculation of emission reductions
Additional comments:	Not applicable
Means of verification:	Data of the parameter in the monitoring report have been verified through checking Layout of the entire collection pipelines, and it was verified that all data is in line with Layout of the entire collection pipelines; Information flow was verified by checking Layout of the entire collection pipelines, and all information are consistent; Monitoring method was verified by site visit, all monitoring method meets the description in the approved PDD.

Relevant SDG Indicator	SDG 7 - Affordable and Clean Energy SDG Indicator 7.2.1 Renewable energy share in the total final energy consumption SDG 13 – Climate Action SDG indicator 13.2.2 Total greenhouse gas emissions per year
Data/parameter:	EL _{LFG}
Unit	MWh
Description	Net amount of electricity generated using LFG
Measured/calculated/default	calculated
Source of data	Monthly Report issued by the project owner /19/ and Electricity Receipts issued by the grid
Value(s) of monitored parameter	01/08/2020-31/12/2020: 8364.773 01/01/2021-21/04/2021: 3955.03 Total: 12,319.803
Information Flow	This parameter was calculated via equation: $EL_{LFG} = EL_{\text{generation}} - EL_{\text{internal consumption}}$
Monitoring equipment	As per renewed PDD, 12 meters (M1, M2, M3, M4, M5, M6, M7, M8, M9, M10, M11 and M12) are installed to monitor the net amount of electricity generated using LFG (EL _{LFG}). M1, M2 and M3 with accuracy of 0.5S were installed to monitor electricity generation from 3 generators and M4 will be installed to measure electricity generation from the fourth generator (EL _{generation}). M5 and M6 with accuracy of 2 were installed to monitor the electricity imported from the grid by the project (EL _{internal consumption}). As the project share two 10.5kV transmission lines with incineration project; M7 and M9 with accuracy of 0.2% and M8 and M10 with accuracy of 0.5% were installed to monitor the electricity exported to and imported from the power grid for incineration project and the project activity. M11 and M12 were installed to monitor the power generation from incineration project. M1, M2, M3, M4, M5 and M6 are working as the key meters, when M1, M2, M3, M4, M5 and M6 are malfunction, M7, M8, M9, M10, M11 and M12 will be used for monitoring. Via site visit, it is confirmed that generator 6# are under plan and M4 that planned to be installed at the outlet of generator 6# was not applicable for this monitoring period. By checking operation logbook /16/, it is confirmed that key meters M1, M2, M3, M5 and M6 are working well and used for emission reductions calculation during this

	monitoring period.
Calibration	refer to EL _{generation} and EL _{internal consumption} below
Measuring/reading/recording frequency:	Continuously measured and monthly recording
Calculation method (if applicable):	refer to EL _{generation} and EL _{internal consumption} below
QA/QC procedures:	refer to EL _{generation} and EL _{internal consumption} below
Purpose of data:	Calculation of emission reductions
Additional comments:	Not applicable
Means of verification:	refer to EL _{generation} and EL _{internal consumption} below

Relevant SDG Indicator	SDG 7 - Affordable and Clean Energy SDG Indicator 7.2.1 Renewable energy share in the total final energy consumption SDG 13 – Climate Action SDG indicator 13.2.2 Total greenhouse gas emissions per year														
Data/parameter:	EL _{generation}														
Unit	MWh														
Description	Electricity generation from the generator in the year y														
Measured/calculated/default	Measured														
Source of data	Monthly Report issued by the project owner /19/ and Electricity Receipts issued by the grid /35/														
Value(s) of monitored parameter	01/08/2020-31/12/2020: 9150.28 01/01/2021-21/04/2021: 4274.54 Total: 13,424.820														
Information Flow	This parameter was continuously monitored by 3 electricity meters M1, M2 and M3 installed respectively at the output of the 3 generators. The readings of electricity meters were aggregated monthly in Monthly Report /19/. At the 24:00 of last day of each month, the raw data of meter readings are recorded by staff from power grid company and then transcribes the data into Electricity Receipts /35/ after the confirmation of the project owner. The data in Monthly Report and Electricity Receipts have been sent to the Consultant for reporting of GHG emission reduction.														
Monitoring equipment	Electricity meters, which have been confirmed through site visit.														
Calibration	By checking the Calibrated Certification of electricity meters /24/, the calibration information are verified by the assessment team and shown as below: <table> <tr> <td>Type:</td><td>DSZ188</td><td>DSZ178</td><td>DSZ188</td></tr> <tr> <td>Serial number:</td><td>1524765942</td><td>1528634635</td><td>1524764230</td></tr> <tr> <td>Accuracy Class:</td><td>0.5S</td><td>0.5S</td><td>0.5S</td></tr> </table>			Type:	DSZ188	DSZ178	DSZ188	Serial number:	1524765942	1528634635	1524764230	Accuracy Class:	0.5S	0.5S	0.5S
Type:	DSZ188	DSZ178	DSZ188												
Serial number:	1524765942	1528634635	1524764230												
Accuracy Class:	0.5S	0.5S	0.5S												

	Calibration date: 15/06/2020 15/06/2020 15/06/2020 Validity date: 14/06/2021 14/06/2021 14/06/2021 The calibration was conducted by Measurement Center of Jiangsu Electric Power Research Institute and Suzhou Institute of Metrology /10//26/.
Measuring/reading/recording frequency:	continuously measured, hourly recorded and monthly aggregated
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data in the Monthly Report have been crosschecked with that in the Electricity Receipts. The conservative value between Monthly Report and Electricity Receipts was used to calculate emission reductions. Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Purpose of data:	Calculation of emission reductions
Additional comments:	Not applicable
Means of verification:	Data of the parameter in the monitoring report have been verified through checking Monthly Report and Electricity Receipts, and it was verified that all data is in line with Monthly Report; Information flow was verified by checking Monthly Report and Electricity Receipts, and all information are consistent; Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the approved PDD; Calibration was verified by checking calibration certificate, all calibration of monitoring equipment meets the requirement indicated in the approved PDD.

Relevant SDG Indicator	SDG 7 - Affordable and Clean Energy SDG Indicator 7.2.1 Renewable energy share in the total final energy consumption SDG 13 – Climate Action SDG indicator 13.2.2 Total greenhouse gas emissions per year
Data/parameter:	EL _{internal} consumption
Unit	MWh
Description	Electricity imported from the grid in the year y. It includes the electricity consumption of the gas collection system.
Measured/calculated/default	Measured
Source of data	Monthly Report issued by the project owner /19/
Value(s) of monitored parameter	01/08/2020-31/12/2020: 785.507 01/01/2021-21/04/2021: 319.51 Total: 1,105.017

Information Flow	This parameter was continuously monitored by 2 electricity meters M5, and M6 installed at line to the internal consumption. The readings of electricity meters were aggregated monthly in Monthly Report /19/. At the 24:00 of last day of each month, the raw data of meter readings are recorded by staff from power grid company and then transcribes the data into Electricity Receipts /35/ after the confirmation of the project owner. The data in Monthly Report and Electricity Receipts have been sent to the Consultant for reporting of GHG emission reduction.															
Monitoring equipment	Electricity meters, which have been confirmed through site visit.															
Calibration	By checking the Calibrated Certification of electricity meters /25/, the calibration information are verified by the assessment team and shown as below: <table><tr><td>Type:</td><td>DT862</td><td>DT862</td></tr><tr><td>Serial number:</td><td>2355946</td><td>2008-0577129</td></tr><tr><td>Accuracy Class:</td><td>2</td><td>2</td></tr><tr><td>Calibration date:</td><td>15/06/2020</td><td>15/06/2020</td></tr><tr><td>Validity date:</td><td>14/06/2021</td><td>14/06/2021</td></tr></table> The calibration was conducted by Measurement Center of Jiangsu Electric Power Research Institute and Suzhou Institute of Metrology /10//26/.	Type:	DT862	DT862	Serial number:	2355946	2008-0577129	Accuracy Class:	2	2	Calibration date:	15/06/2020	15/06/2020	Validity date:	14/06/2021	14/06/2021
Type:	DT862	DT862														
Serial number:	2355946	2008-0577129														
Accuracy Class:	2	2														
Calibration date:	15/06/2020	15/06/2020														
Validity date:	14/06/2021	14/06/2021														
Measuring/reading/recording frequency:	continuously measured, hourly recorded and monthly aggregated															
Calculation method (if applicable):	Not applicable															
QA/QC procedures:	Data in the Monthly Report have been crosschecked with that in the Daily Report, and was verified to be consistent. Data record will be archived for a period of 2 years after the crediting period to which the records pertain.															
Purpose of data:	Calculation of emission reductions															
Additional comments:	Not applicable															
Means of verification:	Data of the parameter in the monitoring report have been verified through checking Monthly Report, and it was verified that all data is in line with Monthly Report; Information flow was verified by checking Daily Report and Monthly Report, and all information are consistent; Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the approved PDD; Calibration was verified by checking calibration certificate, all calibration of monitoring equipment meets the requirement indicated in the approved PDD.															

Parameters Fixed ex-ante:

Below data has been verified against the data sources and the approved PDD for CP2 and CP3 /05/.

SDG Indicator	Data and parameter	Unit	Value applied	Assessment
13 Emissions Reductions	Regulatory requirements related to landfill gas projects	/	/	As per approved renewed PDD, this parameter is updated at renewal of crediting period, which has been verified by the assessment team as appropriate for ex ante calculation.
	GWP _{CH4}	tCO ₂ e/tCH ₄	25 for 01/08/2020-31/12/2020 28 for 01/01/2021-21/04/2021	The source of data was "Applicability of global warming potential for gold standard for the global goals projects" issued by GS on 03/06/2021. IPCC fourth assessment report (AR4) default value was applied for monitoring period before 2021, i.e. from 01/08/2020-31/12/2020, and IPCC fifth assessment report (AR5) default value was applied for monitoring period after 2021, i.e. from 01/01/2021-21/04/2021, which has been verified by the assessment team as appropriate for ex ante calculation.
	D _{CH4}	tCH ₄ /m ³ CH ₄	0.0007168	The source of data was "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", which has been verified by the assessment team as appropriate for ex ante calculation.
	NCV _{CH4}	TJ/t CH ₄	0.0504	The source of data was IPCC 2006, which has been verified by the assessment team as appropriate for ex ante calculation.
	BE _{CH4,SWDS,y}	tCO ₂ e	/	As per approved renewed PDD, this parameter is calculated as per the Methodological tool "Emissions from solid waste disposal sites" (version 07.0).
	φ	/	0.75	The source of data was "Emissions from solid waste disposal site" (version 07.0), which has been verified by the assessment team as appropriate for ex ante calculation.
	OX _{top_layer}	/	0.1	The source of data was "Emissions from solid waste disposal site" (version 07.0), which has been verified by the assessment team as appropriate for ex ante calculation.
	F	/	0.5	Default value from "Emissions from solid waste disposal site" (version 07.0), which has been verified by the assessment team as appropriate for ex ante calculation.
	DOC _f	/	0.5	Default value from "Emissions

				from solid waste disposal site" (version 07.0), which has been verified by the assessment team as appropriate for ex ante calculation.														
	MCF	/	0.8	As per approved renewed PDD for CP2, 0.8 is chosen for this parameter, which is for unmanaged solid waste disposal sites – deep. This comprises all SWDS not meeting the criteria of managed SWDS and which have depths of greater than or equal to 5 meters. Default value from "Emissions from solid waste disposal site" (version 07.0), which has been verified by the assessment team as appropriate for ex ante calculation.														
	DOC _j	/	<table><tr><td>Waste type j</td><td>DOC_j (% wet waste)</td></tr><tr><td>Wood and wood products</td><td>43</td></tr><tr><td>Pulp, paper and cardboard (other than sludge)</td><td>40</td></tr><tr><td>Food, food waste, beverages and tobacco (other than sludge)</td><td>15</td></tr><tr><td>Textiles</td><td>24</td></tr><tr><td>Garden, yard and park waste</td><td>20</td></tr><tr><td>Glass, plastic, metal, other inert waste</td><td>0</td></tr></table>	Waste type j	DOC _j (% wet waste)	Wood and wood products	43	Pulp, paper and cardboard (other than sludge)	40	Food, food waste, beverages and tobacco (other than sludge)	15	Textiles	24	Garden, yard and park waste	20	Glass, plastic, metal, other inert waste	0	Default value from "Emissions from solid waste disposal site" (version 07.0), which has been verified by the assessment team as appropriate for ex ante calculation.
Waste type j	DOC _j (% wet waste)																	
Wood and wood products	43																	
Pulp, paper and cardboard (other than sludge)	40																	
Food, food waste, beverages and tobacco (other than sludge)	15																	
Textiles	24																	
Garden, yard and park waste	20																	
Glass, plastic, metal, other inert waste	0																	
	k _j	/	0.03	As per approved renewed PDD for CP2, 0.03 was selected for parameter K _j , considering MAT and MAP/PET ratio in project location. The source of data was "IPCC 2006 Guidelines for National Greenhouse Gas Inventories", which has been verified by the assessment team as appropriate for ex ante calculation.														
	EF _{grid,CM,y}	tCO ₂ /MWh	0.71694	The source of data was "2014 Baseline Emission Factors for Regional Power Grids in China", which has been verified by the assessment team as appropriate for ex ante calculation. The parameters EG _y , Electricity Imports from Connected Electricity														

				Systems to East China Power Grid, $FC_{i,y}$, $NCV_{i,y}$, $EF_{CO2,i,y}$, efficiency level of best technology commercially available in China for coal-fired power generation, Efficiency level of best technology commercially available in China for oil and gas fired power generation, CAP available at validation in the approved renewed PDD was used to calculate $EF_{grid,CM,y}$.
	$EF_{grid,OM,y}$	tCO ₂ /MWh	0.8095	The source of data was “2014 Baseline Emission Factors for Regional Power Grids in China”, which has been verified by the assessment team as appropriate for ex ante calculation.
	$EF_{grid,BM,y}$	tCO ₂ /MWh	0.6861	The source of data was “2014 Baseline Emission Factors for Regional Power Grids in China”, which has been verified by the assessment team as appropriate for ex ante calculation.
	W_{OM}	%	25	The source of data was “Tool to calculate the emission factor for an electricity system” (version 05.0), which has been verified by the assessment team as appropriate for ex ante calculation.
	W_{BM}	%	75	The source of data was “Tool to calculate the emission factor for an electricity system” (version 05.0), which has been verified by the assessment team as appropriate for ex ante calculation.
	$R_{LFG, y}$	%	Higher than 65%, close to 100%	The value of this parameter was sourced from approved renewed PDD for CP2 and have been verified by the assessment team as appropriate for ex ante calculation. As per approved renewed PDD for CP2, this parameter is also monitored ex post. Please refer to section 3.4 GHG parameters section for detailed justification of monitoring of $R_{LFG, y}$.

3.5 SDG Outcomes and Safeguarding Principles Monitoring

In the approved renewed PDD for CP2, 6 data/parameters are chosen for the monitoring of SDG/Safeguarding Principles. The verification of the data/parameters required by the monitoring plan is provided as follows:

Relevant SDG Indicator	Safeguarding Principle 3.1, 9.4
Data/parameter:	AQ _y

Unit	/
Description	Air quality
Measured/calculated/default	measured
Source of data	Test Report from qualified third party /28//41//42/
Value(s) of monitored parameter	Air quality complies with relevant national standard GB 16297-1996 and GB 14554-1993
Monitoring equipment	Not applicable
Measuring/reading/recording frequency:	Annually
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Purpose of data:	SDG claim
Additional comments:	Not applicable
Means of verification:	Test Report from Kang Da Testing Technology (Jiangsu) Co., Ltd. issued on 04/03/2020, Test Report from Guo Ce Testing Technology (Jiang Su) Co., Ltd. issued on 15/11/2021 /28/ have been verified and the verification team was able to confirm that the air quality complies with relevant national standard GB 16297-1996 and GB 14554-1993.

Relevant SDG Indicator	Safeguarding Principle 2.2, 6.1														
Data/parameter:	Human and institutional capacity														
Unit	/														
Description	The project organizes trainings for the staff on the technology and the monitoring of the plant operation, and the emergency and safety procedures, etc.														
Measured/calculated/default	measured														
Source of data	Training records /36/														
Value(s) of monitored parameter	By checking training records /36/ and through interview with staff from the project owner during site visit, it is confirmed that 8 trainings have been provided during this monitoring period, which were: <table><tr><td>No.</td><td>Date</td><td>Content</td></tr><tr><td>1</td><td>09/2020</td><td>Engine cleaning and protection</td></tr><tr><td>2</td><td>12/2020</td><td>Working standards of staff on duty</td></tr><tr><td>3</td><td>03/2021</td><td>Electric generators start and stop steps</td></tr></table> The frequency of trainings were satisfied with requirements in the approved renewed PDD for CP2.			No.	Date	Content	1	09/2020	Engine cleaning and protection	2	12/2020	Working standards of staff on duty	3	03/2021	Electric generators start and stop steps
No.	Date	Content													
1	09/2020	Engine cleaning and protection													
2	12/2020	Working standards of staff on duty													
3	03/2021	Electric generators start and stop steps													
Monitoring equipment	Not applicable														
Measuring/reading/recording frequency:	As per approved renewed PDD for CP2, this parameter is monitored annually.														
Calculation method (if applicable):	Not applicable														

QA/QC procedures:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Purpose of data:	SDG claim
Additional comments:	Not applicable
Means of verification:	By checking training records /36/ and through interview with staff from the project owner during site visit, it is confirmed that trainings have been provided periodically to the staff on the technology and the monitoring of the plant operation, and the emergency and safety procedures, etc., which is in compliance with approved renewed PDD for CP2.

Relevant SDG Indicator	SDG 8 - Decent Work and Economic Growth 8.5.2 Unemployment rate, by sex, age and persons with disabilities Safeguarding Principle 2.2, 6.1
Data/parameter:	Employment
Unit	/
Description	Number of people employed and fulfilment of labour standards
Measured/calculated/default	Not applicable
Source of data	Staff Roster /37/ and training records /36/
Value(s) of monitored parameter	20 employment opportunities, including 8 full-time and 12 part-time jobs have been provided.
Monitoring equipment	Not applicable
Measuring/reading/recording frequency:	Annually
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Purpose of data:	SDG claim
Additional comments:	Not applicable
Means of verification:	By checking Staff Roster /37/ and training records /36/, it is confirmed 20 employment opportunities, including 8 full-time and 12 part-time jobs have been provided, which is in compliance with approved renewed PDD for CP2.

Relevant SDG Indicator	SDG 8 - Decent Work and Economic Growth 8.5.2 Unemployment rate, by sex, age and persons with disabilities Safeguarding Principle 2.2, 6.1
Data/parameter:	Livelihood of the poor
Unit	/
Description	The project will supply income to workers involved.
Measured/calculated/default	Not applicable

Source of data	Payment roll /38/ and lowest salary level of Jiangsu Province /39/ Photos of holding birthday parties for the disabled, lectures on garbage sorting, love activities for children of migrant workers, and sending heat relief products to sanitation workers /40/		
Value(s) of monitored parameter	Vintage	Average salary	Lowest salary level of Jiangsu Province
	2020	9,027	2,280
	2021	8,550	2,280
Monitoring equipment	Not applicable		
Measuring/reading/recording frequency:	Annually		
Calculation method (if applicable):	Not applicable		
QA/QC procedures:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.		
Purpose of data:	SDG claim		
Additional comments:	Not applicable		
Means of verification:	By checking Payment roll /38/ and lowest salary level of Jiangsu Province /39/, it is confirmed the average salary of staff that provided by the project owner was much higher than lowest salary level of Jiangsu Province and therefore, the verification team considers the project activity contributes to employment in local area. Besides, by checking Photos of holding birthday parties for the disabled, lectures on garbage sorting, love activities for children of migrant workers, and sending heat relief products to sanitation workers etc. /40/ as well as interviewing with staff from the project owner, the verification team was able to confirmed that the project owner have conducted a series of charitable activities in the local area.		

Relevant SDG Indicator	Safeguarding Principle 3.1, 9.4
Data/parameter:	WQ _y
Unit	/
Description	Negative water quality effects that are prevented by processing units.
Measured/calculated/default	Not applicable
Source of data	Test Report from qualified third party /29//41//42/
Value(s) of monitored parameter	The water quality is in compliance with national standard GB/T 14848-2017.
Monitoring equipment	Not applicable
Measuring/reading/recording frequency:	Annually
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data record will be archived for a period of 2 years after the crediting

	period to which the records pertain.
Purpose of data:	SDG claim
Additional comments:	Not applicable
Means of verification:	Via checking landfill leachate processing facility during site visit /43/ and through interviewing with staff from the project owner, it is confirmed that the landfill leachate has been collected properly and transported to Suzhou Gaoxin wastewater treatment plant. Test Report from Kang Da Testing Technology (Jiangsu) Co., Ltd. issued on 22/05/2020 and Test Report from Guo Ce Testing Technology (Jiang Su) Co., Ltd. issued on 23/12/2021 /29/ have been verified and the verification team was able to confirm that the water quality complies with relevant national standard GB/T14848-2017.

Relevant SDG Indicator	Safeguarding Principle 3.1, 9.4
Data/parameter:	Other pollutant
Unit	/
Description	Noise impacts that are prevented by several approaches.
Measured/calculated/default	Not applicable
Source of data	Test Report from qualified third party /30//41//42/
Value(s) of monitored parameter	The noise quality is in compliance with relevant national standard GB 12348-2008.
Monitoring equipment	Not applicable
Measuring/reading/recording frequency:	Annually
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Purpose of data:	SDG claim
Additional comments:	Not applicable
Means of verification:	Through interviewing with staff from the project owner, it is confirmed that measures have taken in order to minimize the noise impacts during the operation period, i.e. the muffler has been installed to avoid the noise impact on the local citizens and employees during the project operation. Test Report from Kang Da Testing Technology (Jiangsu) Co., Ltd. issued on 19/06/2020 and Test Report from Guo Ce Testing Technology (Jiang Su) Co., Ltd. issued on 23/12/2021 /30/ have been verified and the verification team was able to confirm that the noise quality is in compliance with relevant national standard GB 12348-2008.

During the site visit, it was able to confirm that a grievance expression book /27/ with contact information was provided at the office of the project owner for grievance mechanism and continues inputs, also by checking the comment book and staff in charge of Telephone access and internet Internet/email access; it was able to confirm there are no comments received during the monitoring period surely legal disputes / pending judicial processes detected.

Applus+ Certification checked all registries including VCS (<http://www.vcsprojectdatabase.org/>) and CDM (<https://cdm.unfccc.int/Projects/projsearch.html>), there are no double counting for this monitor period for the project as the project only registered under Gold Standard.

In Summary, it is Applus+ Certification's opinion that the monitoring of the project owner regarding to sustainability is in line with requirement of the GS4GG Principles and Requirements Version 1.2.

3.6 Assessment of Data and Calculation of Greenhouse Gas Emission Reductions

As a result of verification of the ER calculation process, the assessment team confirmed that all the parameters required for the determination of the emission reductions have been included in the Monitoring report (version 2.0 dated 30/11/2023) /01/, ER calculation spreadsheet, which are consistent with the applied GS Methodology "ACM0001 Flaring or use of landfill gas version 16.0 (for 2nd CP)" /14/ and the monitoring plan contained in the approved renewed PDD for CP2 /05/. The parameters are complete in this monitoring period.

After verifying the reported figures with the raw data sources, it's confirmed that the values of the parameters from the raw data sources are consistent with those quoted in the Monitoring Report Version (version 2.0 dated 30/11/2023) /01/ and ER calculation spreadsheet /02/. The verification process for the same has been clearly described in section 3.4 of this report. See below for the detailed data:

Baseline emissions:

$$BE_y = BE_{CH_4,y} + BE_{EC,y}$$

Where:

BE_y = Baseline emissions in year y (tCO₂e/yr)

$BE_{CH_4,y}$ = Baseline emissions of methane from the SWDS in year y (tCO₂e/yr)

$BE_{EC,y}$ = Baseline emissions associated with electricity generation in year y (tCO₂e/yr)

$$BE_{CH_4} = ((1 - OX_{top_layer}) \times F_{CH_4,PJ,y} - F_{CH_4,BL,y}) \times GWP_{CH_4}$$

Where:

$BE_{CH_4,y}$ = Baseline emissions of methane from the SWDS in year y (tCO₂e/yr)

OX_{top_layer} = Fraction of methane in the LFG that would be oxidized in the top layer of the SWDS in the baseline (dimensionless)

$F_{CH_4,PJ,y}$ = Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH₄/yr)

$F_{CH_4,BL,y}$ = Amount of methane in the LFG that would be flared in the baseline in year y (tCH₄/yr)

GWP_{CH_4} = Global warming potential of CH₄ (tCO₂e/tCH₄)

As per approved renewed PDD for CP2, $F_{CH_4,BL,y} = 0$

$$F_{CH_4,PJ,y} = F_{CH_4,flared,y} + F_{CH_4,EL,y}$$

Where:

$F_{CH_4,PJ,y}$ = Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH₄/yr)

$F_{CH_4,flared,y}$ = Amount of methane in the LFG which is destroyed by flaring in year y (tCH₄/yr)

$F_{CH_4,EL,y}$ = Amount of methane in the LFG which is used for electricity generation in year y (tCH₄/yr)

By checking actual layout of the entire collection pipelines /34/, it is confirmed that the collection pipeline covers the well to electricity generator and to flare which is used for emergency purpose. By checking operation logbook /16/, it is confirmed that no emergency was happened during this monitoring period and the flare was not used. Therefore, $F_{CH_4,flared,y} = 0$.

$$F_{CH_4,EL,y} = LFG_{electricity,y} * W_{CH_4} * P_1 * T_0 * \rho_0 / (P_0 * T_1)$$

$LFG_{electricity}$ = Amount of landfill gas combusted in power plant (m³)

W_{CH_4} = Methane fraction in the landfill gas (m³ CH₄/m³ LFG)

P_1 = Pressure of collected landfill gas (kPa)

T_0 = Temperature under standard condition, 0 degree Celsius

ρ_0 = Density of methane under standard condition, 0.0007168t/m³

P_0 = Pressure under standard condition (101.3 kPa)

T_1 = Temperature of collected landfill gas, degree Celsius

Based on parameters justified in section 3.4 and equations above, it is confirmed that $F_{CH_4,EL,y}$ was calculated to be:

Parameter	Monitoring period	
	01/08/2020-31/12/2020	01/01/2021-21/04/2021
$LFG_{electricity}$ (m ³)	7,477,979	2,967,378
W_{CH_4} (m ³ CH ₄ /m ³ LFG)	40.01%	24.79%
P_1 (kPa)	108.025	108.025
T_0 (k)	273.15	273.15
ρ_0 (t/m ³)	0.0007168	0.0007168

P ₀ (kPa)	101.3	101.3
T ₁ (K)	311.15	295.15
F _{CH₄,EL,y} (tCH ₄)	2,008	520

Based on parameters justified in section 3.4 and equations above, it is confirmed that BE_{CH₄} was calculated to be:

Parameter	Monitoring period	
	01/08/2020-31/12/2020	01/01/2021-21/04/2021
OX _{top_layer}	0.1	0.1
F _{CH₄,PJ,y} (tCH ₄)	2,008	520
F _{CH₄,BL,y} (tCH ₄)	0	0
GWP _{CH₄} (tCO ₂ /tCH ₄)	25	28
F _{CH₄,flared,y} (tCH ₄)	0	0
F _{CH₄,EL,y} (tCH ₄)	2,008	520
BE_{CH₄,y} (tCO₂)	45,180	13,104

$$BE_{EC,y} = \sum_k EC_{BL,k,y} \times EF_{EF,k,y} \times (1 + TDL_{k,y})$$

Where:

- BE_{EC,y} = Baseline emissions from electricity consumption in year y (tCO₂/yr)
- EC_{BL,k,y} = Quantity of electricity that would be consumed by the baseline electricity consumption source k in year y (MWh/yr)
- EF_{EL,k,y} = Emission factor for electricity generation for source k in year y (tCO₂/MWh)
- TDL_{k,y} = Average technical transmission and distribution losses for providing electricity to source k in year y
- k = Sources of electricity consumption in the baseline

Based on parameters justified in section 3.4 and equations above, it is confirmed that BE_{EC,y} was calculated to be:

Parameter	Monitoring period
-----------	-------------------

	01/08/2020-31/12/2020	01/01/2021-21/04/2021
$EC_{BL,k,y}$ (MWh)	9,150.28	4,274.54
$EF_{EL,k,y}$ (tCO ₂ /MWh)	0.71694	0.71694
$TDL_{k,y}$	3%	3%
$BE_{EC,y}$ (tCO₂)	6,757	3,156

Therefore, baseline emissions BE_y were calculated to be:

Parameter	Monitoring period	
	01/08/2020-31/12/2020	01/01/2021-21/04/2021
$BE_{CH_4,y}$ (tCO ₂)	45,180	13,104
$BE_{EC,y}$ (tCO ₂)	6,757	3,156
BE_y (tCO₂)	51,937	16,260

Project emissions:

$$PE_y = PE_{EC,y} + PE_{FC,y}$$

Where:

PE_y = Project emissions in year y (tCO₂/yr)

$PE_{EC,y}$ = Emissions from consumption of electricity due to the project activity in year y (tCO₂/yr)

$PE_{FC,y}$ = Emissions from consumption of fossil fuel due to the project activity, for purpose other than electricity generation, in year y (tCO₂/yr)

By checking operation logbook /16/ and through interview with the project owner during site visit, it is confirmed that no fossil fuel was used during this monitoring period. Therefore, $PE_{FC,y} = 0$.

$$PE_{EC,y} = \sum_j EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y})$$

Where:

$PE_{EC,y}$ = Project emissions from electricity consumption in year y (tCO₂/yr)

$EC_{PJ,j,y}$ = Quantity of electricity consumed by the project electricity consumption source j in year y (MWh/yr)

$EF_{EL,j,y}$ = Emission factor for electricity generation for source j in year y (tCO₂/MWh)

$TDL_{j,y}$ = Average technical transmission and distribution losses for providing electricity to source j in year y

j = Sources of electricity consumption in the project

Based on parameters justified in section 3.4 and equations above, it is confirmed that $PE_{EC,y}$ was calculated to be:

Parameter	Monitoring period	
	01/08/2020-31/12/2020	01/01/2021-21/04/2021
$EC_{PJ,j,y}$ (MWh)	785.507	319.510
$EF_{EL,j,y}$ (tCO ₂ /MWh)	0.71694	0.71694
$TDL_{j,y}$	20%	20%
$PE_{EC,y}$ (tCO₂)	676	275

Therefore, project emissions PE_y were calculated to be:

Parameter	Monitoring period	
	01/08/2020-31/12/2020	01/01/2021-21/04/2021
$PE_{FC,y}$ (tCO ₂)	0	0
$PE_{EC,y}$ (tCO ₂)	676	275
PE_y (tCO₂)	676	275

Emission reductions:

Parameter	Monitoring period	
	01/08/2020-31/12/2020	01/01/2021-21/04/2021
BE_y (tCO ₂)	51,937	16,260
PE_y (tCO ₂)	676	275
ER_y (tCO₂)	51,261	15,985

The calculation tool, i.e. the ER calculation spreadsheet /02/ clearly and transparently describes the calculation of emission reductions. The ER calculation spreadsheet /02/ is indicated with the issuing date and revision number. The assessment team re-produced the calculation process

and confirmed that the methods and formulae used to obtain the baseline, project and leakage emissions are appropriate. The calculation has been done in accordance with the methods and formulae described in the registered monitoring plan and applicable methodology.

The reported data have been cross-checked against other sources available as explained above in section 3.4 of the report.

The assessment team confirms that all the assumptions, emission factors and default values (ex-ante values) from PDD have been correctly justified. All the emission factors and default values are explicitly mentioned in the monitoring report /01/.

3.7 Management and Operational System

The responsibilities of data measurement, collection, verifying, archiving etc. have been clearly defined in the Project Operation Manual. The data related to ER calculation as well as data monitoring, collection process etc. have been internally reviewed by the management of the Monitoring team regularly. The responsibility of each function is consistent with the monitoring plan in the registered PDD.

- Mr. Liu Zhaofeng, Project Director is responsible for supervising the whole issues in the project activity;
- Mr. Wang Ye (O&M Manager) is responsible for data collection, verifying and archiving;
- Mr. Huang Huarui (O&M Manager) is responsible for collating electricity receipts and sale records and management of verification materials;
- Ms. Hou Ning from the South Pole Carbon Asset Management Ltd. is responsible for preparing the Monitoring Report and ER calculation.

The information flow of each parameter has been verified by the assessment team via interviewing with responsible personnel and checking with the Project Operation Manual.

It's verified during the teleconference and former site verification, the monitoring procedure as well as the internal quality management and control procedures are stipulated in the Project Operation Manual. The procedure are issued and approved by the top management. The monitoring personnel have been interviewed by the assessment team and it's confirmed that the monitoring is implemented as per the procedure. Also, the training record and work certificate has been checked by the assessment team and it is confirmed that the monitoring personnel are get sufficient train to perform the monitoring.

All the data and documents, either hard copies or electric copies, will be kept for two years after the end of the last crediting period or the last issuance of GS VERs for this Project, whichever occurs later.

4. SUMMARY OF FINDINGS

Type:	☐ CAR ☒ CL/CR ☐ FAR	Number:	#1
Raised by:	Doris Dai		
Description of the audit finding	Date:	07/01/2023	
Please supplement estimated emission reductions in section A.1 of the MR.			
Project Participant's response	Date:	23/02/2023	
The estimated annual emission reductions were 136,794 tCO ₂ e during 2 nd crediting period.			
Documentation provided as evidence by Project Participant			
Updated MR			
Auditor's assessment comment	Date:	03/03/2023	
The estimated annual emission reductions has been supplemented in section A.1 of the MR, which has been verified to be correct through checking approved renewed PDD for CP2.			
Conclusion by Lead Auditor	Date:	03/03/2023	
CL 01 was closed.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	#1
Raised by:	Doris Dai		
Description of the audit finding	Date:	07/01/2023	
Please supplement description of ex-ante parameters NCV _{CH₄} , EF _{grid,OM,y} , EF _{grid,BM,y} , W _{OM} , W _{BM} , R _{LFG,y} in section D.1 of the MR.			
Project Participant's response	Date:	23/02/2023	
Description of ex-ante parameters NCV _{CH₄} , EF _{grid,OM,y} , EF _{grid,BM,y} , W _{OM} , W _{BM} , R _{LFG,y} has been supplemented in section D.1 of the MR.			
Documentation provided as evidence by Project Participant			
Updated MR			
Auditor's assessment comment	Date:	03/03/2023	
Description of ex-ante parameters NCV _{CH₄} , EF _{grid,OM,y} , EF _{grid,BM,y} , W _{OM} , W _{BM} , R _{LFG,y} has been supplemented in section D.1 of the MR and has been verified by the assessment team.			
Conclusion by Lead Auditor	Date:	03/03/2023	
CAR 01 was closed.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	#2
Raised by:	Doris Dai		
Description of the audit finding	Date:	07/01/2023	
Please supplement description of ex-post parameters Livelihood of the poor, Management of SWDS, R _{LFG,y} , Laws and regulations about waste management system in China in section D.2 of the MR.			
Project Participant's response	Date:	23/02/2023	
Description of ex-post parameters Livelihood of the poor, Management of SWDS, R _{LFG,y} , Laws and regulations about waste management system in China has been supplemented in section D.2 of the MR.			
Documentation provided as evidence by Project Participant			
Updated MR			
Auditor's assessment comment	Date:	03/03/2023	

Description of ex-post parameters Livelihood of the poor, Management of SWDS, R _{LFG,y} , Laws and regulations about waste management system in China has been supplemented in section D.2 of the MR and has been verified by the assessment team.		
Conclusion by Lead Auditor	Date:	03/03/2023
CAR 02 was closed.		

Type:	☒ CAR	☐ CL/CR	☐ FAR	Number:	#3
Raised by:	Doris Dai				
Description of the audit finding				Date:	07/01/2023
Please supplement description of safeguarding principle parameters Employment, Livelihood of the poor, Human and institutional capacity in section F of the MR.					
Project Participant's response				Date:	23/02/2023
Description of safeguarding principle parameters Employment, Livelihood of the poor, Human and institutional capacity has been supplemented in section F of the MR.					
Documentation provided as evidence by Project Participant					
Updated MR					
Auditor's assessment comment				Date:	03/03/2023
Description of safeguarding principle parameters Employment, Livelihood of the poor, Human and institutional capacity has been supplemented in section F of the MR and has been verified by the assessment team.					
Conclusion by Lead Auditor				Date:	03/03/2023
CAR 03 was closed.					

5. REFERENCE

LIST OF DOCUMENTS	
S. No.	Document/Evidence/Reference/Web link, Version, Date
01	GS4GG Monitoring Report Version 1.0, 28/06/2021 GS4GG Monitoring Report Version 1,1, 23/02/2023 GS4GG Monitoring Report Version 1,2, 22/05/2023 GS4GG Monitoring Report Version 2.0, 30/11/2023
02	ER calculation Spreadsheet
03	Registered GS-VER PDD, version 2.0 dated 08/12/2008
04	The final validation report for registration of the GS-VER project activity finished by TUV NORD, Report No: QT-EC0410-08R2 – 08/567, dated 16/03/2009
05	Approved renewed GS-VER PDD for the 2 nd crediting period (version 3.2 dated 20/03/2017)
06	The final validation report for renewed GS PDD for the 2 nd crediting period finished by CCSC, Report No.: EC09 (A) 2015002, dated 21/03/2017
07	Approved renewed GS4GG PDD for the 3 rd crediting period (version 4.0 dated 06/07/2021)
08	GS4GG Validation Report for renewed GS PDD for the 3 rd crediting period finished by CTI, Report No.: CTINB-2020-1223, dated 07/07/2021
09	GS4GG Transition Annex
10	The monitoring reports and corresponding verification report for previous crediting periods
11	GS4GG Principles and Requirements Version 1.2
12	Renewable Energy Activity Requirements Version 1.4
13	GHG emission reduction & sequestration product requirements version 2.1
14	ACM0001 Flaring or use of landfill gas version 16.0 (for 2nd CP) and version 19.0 (for 3rd CP)
15	Feasibility Study Report Approved by Jiangsu Development and Reform Commission on 11/04/2006
16	Operation logbook
17	Management Manual of Qizi Mountain Landfill
18	Daily Report covering this monitoring period
19	Monthly Report covering this monitoring period
20	Calibrated Certification of flow meters
21	Calibrated Certification of methane analyzer
22	Calibrated Certification of temperature meters
23	Calibrated Certification of pressure meters
24	Calibrated Certification of electricity meters (EL _{generation})
25	Calibrated Certification of electricity meters (EL _{internal consumption})
26	Qualification Certificate of Suzhou Institute of Metrology issued by Quality and Technical Supervision Bureau of Jiangsu Province, valid from 20/06/2018 to 19/06/2023
27	Photo of the grievance expression book at project site
28	Air quality: Test Report from Kang Da Testing Technology (Jiangsu) Co., Ltd. issued on 04/03/2020, Test Report from Guo Ce Testing Technology (Jiang Su) Co., Ltd. issued on 15/11/2021

29	Water quality: Test Report from Kang Da Testing Technology (Jiangsu) Co., Ltd. issued on 22/05/2020 and Test Report from Guo Ce Testing Technology (Jiang Su) Co., Ltd. issued on 23/12/2021
30	Noise: Test Report from Kang Da Testing Technology (Jiangsu) Co., Ltd. issued on 19/06/2020 and Test Report from Guo Ce Testing Technology (Jiang Su) Co., Ltd. issued on 23/12/2021
31	Renewable Energy Law of the People's Republic of China
32	National Action plan for the collection and Utilization of municipal landfill gas
33	Catalogue for the Guidance of Industrial Structure Adjustment (2019 version)
34	Layout of the entire collection pipelines
35	Electricity Receipts issued by the grid
36	Training records covering this monitoring period
37	Staff Roaster covering this monitoring period
38	Payment roll covering this monitoring period
39	Lowest salary level of Jiangsu Province: http://jshrss.jiangsu.gov.cn/art/2021/8/5/art_78934_9962897.html
40	Photos of holding birthday parties for the disabled, lectures on garbage sorting, love activities for children of migrant workers, and sending heat relief products to sanitation workers etc.
41	Qualification Certificate of Kang Da Testing Technology (Jiangsu) Co., Ltd. issued by Quality and Technical Supervision Bureau of Jiangsu Province, valid from 21/12/2017 to 20/12/2020
42	Qualification Certificate of Guo Ce Testing Technology (Jiang Su) Co., Ltd. issued by Quality and Technical Supervision Bureau of Jiangsu Province, valid from 13/07/2017 to 01/12/2022
43	Photo of landfill leachate processing facility taken during site visit

6. **VERIFICATION STATEMENT**

Applus+ Certification has been engaged by South Pole Carbon Asset Management Ltd. to perform the first periodical verification of the Suzhou Qizi Mountain Landfill Gas Recovery Project (GS Ref. No. 397).

The management of Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring Plan in the approved renewed GS PDD for the 2nd crediting period (version 3.2 dated 20/03/2017), and the applied methodology ACM0001 Flaring or use of landfill gas version 16.0 (for 2nd CP).

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the Gold Standard. 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 operated as planned and described in the approved renewed PDD for 2nd crediting period;
- the monitoring plan is as per the applied methodology;
- the monitoring in Monitoring Report is as per the approved renewed PDD for 2nd crediting period;
- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the equipment being essential for generating emission reduction is 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.

In our opinion, the GHG emission reductions (GS VERs) for Suzhou Qizi Mountain Landfill Gas Recovery Project for the monitoring period 01/08/2020 to 21/04/2021 as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated.

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: From 01/08/2020 to 21/04/2021

Verified emissions (GS VERs) in the above reporting period:

Emission reductions in 2020 51,261 tCO₂ equivalents

Emission reductions in 2021 15,985 tCO₂ equivalents

Emission reductions 67,246 tCO₂ equivalents

SDG	Net Benefit
SDG 13 Climate Action	67,246 tCO ₂
SDG 7 Affordable and Clean Energy	12,320 MWh
SDG 8 Decent Work and Economic Growth	20 jobs created (8 full-time and 12 part-time); The average salary is higher than lowest local level.

Date: 05/12/2023
Lead Auditor: Doris Dai
Auditor / Tech. Expert: Doris Dai
Tech. Reviewer: Simon Shen

Approver (*Applus+ Certification VVB Technical Manager*)
 Mr. Agustín Calle de Miguel

ASSESSMENT TEAM	
Team Leader Doris Dai	Technical Reviewer: Simon Shen
Signature: Doris Dai	Signature: Meng SHEN.
Approver: Mr. Agustín Calle de Miguel	
Signature: 	