

**GOLD STANDARD FOR THE GLOBAL GOALS**  
**(GS4GG)**

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**VALIDATION REPORT**  
Renewal of the Crediting Period

**Suzhou Qizi Mountain Landfill Gas Recovery Project**

GS ID No.: GS 397  
Report No.: CTINB-2020-1223  
Report Date: 07/07/2021

删除[7]: 15/06/2021



**Shenzhen CTI International Certification Co., Ltd**

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## I. Project description:

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                         |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Project title:</b>                                 | Suzhou Qizi Mountain Landfill Gas Recovery Project (Project ID: GS 397)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                         |
| <b>Report No.:</b>                                    | CTINB-2020-1223                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                         |
| <b>Date of first issue:</b>                           | 06/04/2021                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                         |
| <b>Current revision No.:</b>                          | <del>3</del> .0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                         |
| <b>Date of current revision:</b>                      | <del>07/07/2021</del>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                         |
| <b>Host Country:</b>                                  | P.R.China                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                         |
| <b>Methodology:</b>                                   | ACM0001 <sup>1</sup> (Version 19.0) – Flaring or use of landfill gas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input checked="" type="checkbox"/> Large Scale<br><input type="checkbox"/> Small Scale |
| <b>Tools, Principles and Requirements:</b>            | GS4GG Principles & Requirements, Version 1.2;<br>GS4GG Activity Requirements: RE Activity Requirements, Version 1.3;<br>Gold Standard for the Global Goals Requirements & Guidelines for Transition of Projects from Previous Versions of the Standard, Version 1.1;<br>Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, Version 03.0.1;<br>Tool to calculate the emission factor for an electricity system, Version 07.0;<br>Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation (Version 03.0);<br>Emissions from solid waste disposal sites (version 08.0);<br>Tool to determine the mass flow of a greenhouse gas in a gaseous stream (version 03.0);<br>Project emissions from flaring (version 03.0);<br>Combined tool to identify the baseline scenario and demonstrate additionality, version 07.0. |                                                                                         |
| <b>Scope:</b>                                         | Sectoral Scope 1: Energy industries (renewable/non-renewable sources)<br>Sectoral Scope 13: Waste handling and disposal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                         |
| <b>GS4GG PDD Version and Date:</b>                    | Version 1.0 dated 25/02/2021<br>Version 2.0 dated 01/04/2021<br><u>Version 3.0 dated 11/06/2021</u><br><u>Version 4.0 dated 06/07/2021</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                         |
| <b>GHG reducing measure/technology:</b>               | Electricity generation from landfill gas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                         |
| <b>Annual average emission reductions (estimate):</b> | 105,170 tCO <sub>2</sub> e/yr (SDG 13)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                         |
| <b>Estimated impact:</b>                              | SDG 3: Air quality complies with relevant national standard GB 16297-1996 and GB 14554-1993<br><br>SDG 4: Training provided at least once a year on sophisticated monitoring equipment, computer operation, safety production, etc.<br><br>SDG 7: 17,136 MWh/yr<br><br>SDG 8: <ul style="list-style-type: none"> <li>• Number (employees): 20 persons, including permanent and temporary jobs</li> <li>• The average income of employees is higher than local average salary level</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                         |

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<sup>1</sup> <https://cdm.unfccc.int/methodologies/DB/JPYB4DYQUXQPZLBDVPHA87479EMY9M>

|                                                                                          |                                                           |
|------------------------------------------------------------------------------------------|-----------------------------------------------------------|
|                                                                                          | SDG 13: 105,170 tCO <sub>2</sub> e/yr                     |
| Selected Sustainable Development Goals (SDGs):                                           | 3; 4; 7; 8; 13                                            |
| Name, position and signature of the approver of the validation and certification report: | <div>Li Ziqi</div> <div>Technical Reviewer/Approver</div> |

| Party            | Project Participants                                                        | Party considered a project participant |
|------------------|-----------------------------------------------------------------------------|----------------------------------------|
| P.R.China (Host) | Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. | No                                     |
| Switzerland      | South Pole Carbon Asset Management Ltd.                                     | No                                     |

II. Validation Team:

| Validation Team |                                                                    | Role        |                    |              |                       |                  |                     |                 |                    |              |            |
|-----------------|--------------------------------------------------------------------|-------------|--------------------|--------------|-----------------------|------------------|---------------------|-----------------|--------------------|--------------|------------|
| Full name       | Appointed for Sectoral Scopes (Technical Areas)                    | Team leader | Acting Team Leader | Local Expert | Team Member (Auditor) | Technical Expert | Acting Tech. Expert | Trainee Auditor | Technical Reviewer | Expert to TR | Trainee TR |
| Du Wenjun       | TA1.2, TA13.1, TA13.2                                              | x           |                    | x            |                       | x                |                     |                 |                    |              |            |
| Li Ziqi         | TA1.2, TA4.1, TA5.1, TA5.2, TA11.1, TA11.2, TA12.1, TA13.1, TA13.2 |             |                    |              |                       |                  |                     |                 | x                  | x            |            |

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## ABBREVIATIONS

---

|                   |                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------|
| BM                | Build Margin                                                                               |
| CDM               | Clean Development Mechanism                                                                |
| CME               | Coordinating/managing entity                                                               |
| CER               | Certified Emission Reduction                                                               |
| CM                | Combined Margin                                                                            |
| CO <sub>2</sub>   | Carbon dioxide                                                                             |
| CO <sub>2</sub> e | Carbon dioxide equivalent                                                                  |
| DNA               | Designated National Authority                                                              |
| EB                | Executive Board                                                                            |
| GHG               | Greenhouse gas(es)                                                                         |
| GS                | Gold Standard                                                                              |
| GS4GG             | Gold Standard for the Global Goals                                                         |
| GS-VERs           | Gold Standard Voluntary Emission Reductions                                                |
| GS-VER-PDD        | Gold Standard Voluntary Emission Reduction Project Design Document                         |
| GS4GG PDD         | Gold Standard for the Global Goals Key Project Information & project Design Document (PDD) |
| GS-TAC            | Gold Standard Technical Advisory Committee                                                 |
| GSP               | Global Stakeholder Consultation Process                                                    |
| IPCC              | Intergovernmental Panel on Climate Change                                                  |
| KP                | Kyoto Protocol                                                                             |
| MP                | Monitoring Plan                                                                            |
| MR                | Monitoring Report                                                                          |
| NGO               | Non-governmental Organization                                                              |
| ODA               | Official Development Assistance                                                            |
| OM                | Operating Margin                                                                           |
| PCP               | Project Cycle Procedure                                                                    |
| PDD               | Project Design Document                                                                    |
| EIA Report        | Environmental Impact Assessment Report                                                     |
| FSR               | Feasibility Study Report                                                                   |
| PP                | Project Participant                                                                        |
| UNFCCC            | United Nations Framework Convention on Climate Change                                      |

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## REVIEWED DOCUMENTATION

The following table outlines the documentation reviewed during the validation:

- /1/ GS4GG PDD for renewal of 2nd crediting period, Version 1.0 dated 25/02/2021, Version 2.0 dated 01/04/2021, Version 3.0 dated 11/06/2021, Version 4.0 dated 06/07/2021
- /2/ CER calculation spreadsheet
- /3/ Registered GS-VER PDD, version 2.0 dated 08/12/2008
- /4/ Updated GS-VER-PDD for renewal of 2<sup>nd</sup> crediting period, Version 3.2, dated 20/03/2017
- /5/ GS4GG Transition Annex
- /6/ 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
- /7/ The final validation report for renewal of 2<sup>nd</sup> crediting period finished by CCSC, Report No.: EC09 (A) 2015002, dated 21/03/2017
- /8/ The monitoring reports and corresponding verification report for previous crediting periods
- /9/ Feasibility Study Report Approved by Jiangsu Development and Reform Commission on 11/04/2006
- /10/ Environmental Impact Assessment Report approved by Jiangsu Environment Protection Commission on 23/01/2006
- /11/ The approved consolidated baseline and monitoring methodology ACM0001 (Version 19.0) "ACM0001 Flaring or use of landfill gas"
- /12/ CDM project standard for project activities Version 02.0
- /13/ CDM project cycle procedure for project activities Version 02.0
- /14/ CDM validation and verification standard for project activities Version 02.0
- /15/ GS4GG Principles & Requirements, Version 1.2
- /16/ GS4GG Activity Requirements: RE Activity Requirements, Version 1.3
- /17/ Gold Standard for the Global Goals Requirements & Guidelines for Transition of Projects from Previous Versions of the Standard, Version 1.1
- /18/ Tool to calculate the emission factor for an electricity system Version 07.0
- /19/ Assessment of the validity of the current/original baseline and update of the baseline at the renewal of the crediting period, version 03.0.1
- /20/ Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation (Version 03.0)
- /21/ Emissions from solid waste disposal sites (version 08.0)
- /22/ Tool to determine the mass flow of a greenhouse gas in a gaseous stream (version 03.0)
- /23/ Project emissions from flaring (version 03.0)
- /24/ Combined tool to identify the baseline scenario and demonstrate additionality, version 07.0
- /25/ Guidance for the identification of impacts and indicators for activity level SDG impact reporting, version 1.0
- /26/ Report of Environment Protection for Check & Accept from Local Environment Protection Agency
- /27/ Testing report on air quality, water quality and noise issued by qualified third parties.
- /28/ Pay roll of employees of the project activity
- /29/ Mail provided by the South Pole Carbon Asset Management Ltd.
- /30/ Photos of announcement posted on bulletin boards
- /31/ Training records
- /32/ HR Records
- /33/ <http://cdm.unfccc.int>
- /34/ <http://www.terra.org/>

设置格式[7]: 字体: (默认) Calibri, (中文) 宋体, 非突出显示, 英语(美国), (中文) 中文(简体)

- /35/ <http://www.mee.gov.cn/>
- /36/ <http://www.markit.com/>
- /37/ <http://www.irecstandard.org/>
- /38/ <http://www.greenenergy.org.cn/>
- /39/ Labor Contract Law
- /40/ Women's Rights Protection Law
- /41/ Prohibition of Child Labor Regulations
- /42/ Questionnaires filled by local stakeholders
- /43/ ERPA and payment record between South Pole Carbon Asset Management Ltd. and Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd.

## 1 Introduction

### 1.1 Objective

The validation for renewal of the crediting period serves as assessment of validity of the baseline of project that has opted for renewal of the crediting period. The validation is an independent 3rd party assessment of the project baseline. In particular, the project's baseline and the monitoring plan are validated in order to confirm that the project baseline, as documented, is sound and reasonable and meet the stated requirements and identified criteria. Assessment of validation of baseline is a requirement for all Gold Standard projects seeking for renewal of the crediting period and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of verified emission reductions (VERs).

For projects transit from previous versions of the Standard to Gold Standard for the Global Goals (GS4GG), the validation for renewal of the crediting period also serves as assessment on updated Safeguarding Principles, updated SDG contribution, any updates to monitoring plan, updated baseline information, demonstration of OFN compliance to latest version of applied methodology and other relevant documents under GS4GG.

Gold Standard criteria refer to the Kyoto Protocol criteria and the CDM rules and Modalities and related decisions by the COP/MOP and the CDM Executive Board.

### 1.2 Scope

As per para. 4.2 of Gold Standard for the Global Goals Requirements & Guidelines for Transition of Projects from Previous Versions of the Standard Version 1.1 issued on March 2018, transition projects during the renewal of crediting period shall submit entire project information in new templates issued by VVB for review. The documents shall essentially contain information on updated Safeguarding Principles assessment, updated SDG contribution assessment, any updates to monitoring plan, updated baseline information, demonstration of OFN compliance to latest version of applied methodology etc. If project is looking to stack new Impact Statement and/or Products over GSCERs the required information to demonstrate compliance to the relevant methodology, product specification and additionality shall also be presented.

As per para. 5.1.47 of GS4GG Principles & Requirements Version 1.2 issued on October 2019, Design Certification Renewal follows the same process as Validation and Design Review (Design Certification) though the scope of assessment is limited to: (a) Changes in the Project as related to the General Eligibility Criteria; (b) Incorporation of any relevant updates to the Gold Standard Requirements; (c) Re-definition of Baseline Scenario and any impact of change on the Eligibility Principles, Criteria and Requirements; (d) Any Gold Standard activity, product and methodology-specific Requirements; (e) Demonstration of Ongoing Financial Need, where relevant – see Ongoing Financial Need.

Based on the above GS rules and requirements, the validation scope is defined as an independent and objective review of the GS4GG PDD, the project's baseline study, updated baseline information, the updated Safeguarding Principles, updated SDG contribution, any updates to monitoring plan, demonstration of OFN compliance to latest version of applied methodology and other relevant documents. The information in these documents is reviewed against GS4GG Principles & Requirements, GS4GG RE Activity Requirements, Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

CTI validation team has employed a risk-based and step-wise approach when conducting the validation, focusing on the identification of significant risks for project implementation and the generation of Gold Standard emission reductions.

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

## 2 Validation Method

### 2.1 Appointment of validation team

The validation was conducted by a validation team which was designated by CTI in accordance with its internal procedures. The competence and impartiality of CTI validation team are the key elements that have been taken into account by CTI when appointing CTI validation team. The details of CTI validation team are as follows:

| Validation Team |                                                    | Role        |                    |              |                       |                  |                     |                 |                    |              |            |
|-----------------|----------------------------------------------------|-------------|--------------------|--------------|-----------------------|------------------|---------------------|-----------------|--------------------|--------------|------------|
| Full name       | Appointed for Sectoral Scopes (Technical Areas)    | Team leader | Acting Team Leader | Local Expert | Team Member (Auditor) | Technical Expert | Acting Tech. Expert | Trainee Auditor | Technical Reviewer | Expert to TR | Trainee TR |
| Du Wenjun       | TA1.2, TA3.1                                       | x           |                    | x            |                       | x                |                     |                 |                    |              |            |
| Li Ziqi         | TA1.2, TA3.1, TA5.1, TA5.2, TA11.1, TA11.2, TA12.1 |             |                    |              |                       |                  |                     |                 | x                  | x            |            |

Collectively, the above validation team is competent for conducting the validation and the impartiality is well guaranteed. Meanwhile, the Certificates of Competence for validators and experts of CTI validation team are enclosed in Appendix B to this report.

### 2.2 Desk review

The validation is performed primarily as a document review as below:

The Gold Standard GS4GG PDD and additional background documents related to the project design and baseline, i.e., country area laws, Gold Standard Procedures for the Renewal of a Crediting Period, GS4GG Principles & Requirements, GS4GG RE Activity Requirements, Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period (Version 03.0.1), approved methodology – ACM0001 Flaring or use of landfill gas (Version 19.0), CDM project standard for project activities (PS Version 02.0), CDM project cycle procedure for project activities (PCP Version 02.0), CDM validation and verification standard for project activities (VVS Version 02.0), Glossary of CDM terms and Kyoto Protocol were reviewed.

All reviewed documents and information sources used during desk review are listed in Appendix B to this report.

### 2.3 FOLLOW-UP site visit and interviews with project stakeholders

During the desk-review phase, the relevant documents include the registered GS-VER PDD, updated GS-VER PDD for renewal of 2<sup>nd</sup> crediting period and the corresponding validation report, the previous monitoring reports and corresponding verification reports for the 1st crediting period and other relevant background documents were submitted and assessed.

CTI validation team from Shenzhen CTI International Certification Co., Ltd (CTI) applies standard auditing techniques to assess the renewal of crediting period of the Suzhou Qizi Mountain Landfill Gas Recovery Project. During 11/03/2021 to 12/03/2021, CTI validation team of CTI has performed on-site visit and personal interviews with representatives of the project owner and local authorities.

The issues discussed during the follow-up interview were provided in the table below:

| No. | Interviewee |            |                                                                             | Date                    | Subject                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Team member |
|-----|-------------|------------|-----------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
|     | Last name   | First name | Affiliation                                                                 |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 1   | Hu          | Lixiang    | South Pole Carbon Asset Management Ltd.                                     | 11/03/2021 ~ 12/03/2021 | 1. Status of the project and any modifications (including PPs) with respect to the registered GS-VER-PDD;<br>2. Applicability of selected methodology;<br>3. Baseline of the project and its updates;<br>4. Emission factors and their updates;<br>5. Monitoring plan and changes;<br>6. Stakeholder consultation process and its outcomes;<br>7. Sustainable indicators change assessment;<br>8. Sustainable Development Monitoring Plan;<br>9. Safeguarding principle assessment. | Du Wenjun   |
| 2   | Wang        | Lie        | Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 3   | Li          | Zhihua     |                                                                             |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 4   | Wang        | Ye         |                                                                             |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 5   | Liu         | Songlin    |                                                                             |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 6   | Zhou        | Jialin     | Suzhou Qizi Mountain Landfill Site                                          |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 7   | Yang        | Donghai    |                                                                             |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 8   | Zhou        | Juhua      | Suzhou Wuzhong Environmental Protection Bureau                              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 9   | Zhu         | Junjie     | Suzhou Mudu Town Environmental Protection Bureau                            |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 10  | Yu          | Longmei    | Gusu Village                                                                |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 11  | Wu          | Yanfang    |                                                                             |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 12  | Lu          | Yunnan     |                                                                             |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| 13  | Gao         | Yueming    | Huchiyuan Community                                                         |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |

### 3 Resolution of findings and REPORTING

During the validation of a project activity, to identify issues that need to be further elaborated upon, researched or added to in order to confirm that the project activity meets the CDM requirements and can achieve credible emission reductions, CTI validation team will issue a Corrective Action Request (CAR), a Clarification Request (CL) or a Forward Action Request (FAR) depending on different situations.

A CAR will be raised if one of the following occurs,

- (a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- (b) The requirements have not been met;
- (c) There is a risk that emission reductions cannot be monitored or calculated.

A CL will be raised if information is insufficient or not clear enough to determine whether the applicable requirements have been met.

A FAR will be raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. However, FARs shall not relate to the requirements for registration.

After checking Verification Report of previous monitoring period, CTI Validation Team identified no FARs. In the course of the validation. 3 Corrective Action Request (CAR), 4 Clarification Requests (CL) or Forward Action Request (FAR) were raised during this validation. To address them, the PP responded by providing additional information or evidence, and/or by revising the Gold Standard GS4GG PDD. The Gold Standard GS4GG PDD was resubmitted by PP to CTI validation team for further review. Documents reviewed and information sources used are also listed in Appendix B to this report.

The final validation conclusion presented in this report is based on the project information as described in the Gold Standard GS4GG PDD ([Version 4.0 dated 06/07/2021](#)). CTI validation team compiled the validation report and submitted it for technical review, decision making and final approval.

删除[7]: Version 2.0 dated 01/04/2021

## 4 Summary of Validation Findings

### 4.1 Participation

CTI validation team checked the names of the project participants included in the request for renewal of the crediting period against the updated GS-VER-PDD for renewal of 1st crediting period. Based on desk review and site interview with PP and relevant stakeholders, it is confirmed that the project participant from host Party is Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. and the project participant is South Pole Carbon Asset Management Ltd.. Therefore, CTI validation team confirmed that the project participants indicated in the GS4GG PDD are consistent with the names of the registered project participants for the project activity in the GS website.

### 4.2 Project description

The proposed project - Suzhou Qizi Mountain Landfill Gas Recovery Project was registered as a GS project. The purpose of the project is to utilize landfill gas (LFG) for electricity generation with total installed capacity of 5 MW which consists of 4 units of 1,250 kW generators, with 2 phase of implementation. 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 CO<sub>2</sub> emissions with an estimated 105,170 tCO<sub>2</sub>e per year during the third crediting period. Based on the site visit, CTI validation team assessed project operating-related parameters, which confirmed that the project activity is consistent with the design of GS4GG PDD for the renewal of a crediting period. The geographical coordinates of the project is East longitude 120°33'9" and North latitude 31°14'15", which was confirmed through GPS equipment by validation team during on-site visit. The major technical parameters of the key equipments of the Project.

|                       |                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------|
| Manufacture           | Deutz Power Systems GmhH&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. |

According to the monitoring report and verification reports on GS website ([https://impact.sustain-cert.com/public\\_projects/740](https://impact.sustain-cert.com/public_projects/740)), the 1<sup>st</sup> 7-year renewable crediting period is from 22/04/2007 to 21/04/2014, the 2<sup>nd</sup> 7-year renewable crediting period is from 22/04/2014 to 21/04/2021. Therefore, PP is applying for a 3<sup>rd</sup> crediting period which started from 22/04/2021.

### 4.3 Changes in the Project as related to the General Eligibility Criteria

Project eligibility and any change in the project as related to the general eligibility criteria defined in the GS4GG Principles & Requirements Version 1.2 and GS4GG RE Activity Requirements Version 1.3 is justified according to GS Requirements under GS4GG as below:

| General Eligibility Criteria                                                                       | Means of Validation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Criteria fulfilled                                                     |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| 3.1.1 of GS4GG Principles & Requirements Version 1.2, (a) Types of Project                         | As described in the updated GS-VER-PDD for renewal of 1st crediting period, the project utilizes landfill gas (LFG) to generate electricity to East China Power Grid. Thus, the project type is Renewable Energy Supply, which satisfied with 2.1.2 (a) and (b) of GS4GG RE Activity Requirements, Version 1.3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No |
| 3.1.1 of GS4GG Principles & Requirements Version 1.2, (b) Location of Project                      | As per FSR, the project is located on Qizi Mountain, Mudu County, Wuzhong District, Suzhou City, Jiangsu Province, P.R.China. China is eligible state for Gold Standard VER projects as defined by the GS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No |
| 3.1.1 of GS4GG Principles & Requirements Version 1.2, (c) Project Area, Project Boundary and Scale | <p>For the project activity, ACM0001 Version 19.0 (Latest methodology applied as available on CDM web site) defined the project boundary as "The project boundary of the project activity shall include the site where the LFG is captured and (a) sites where the LFG is flared or used (e.g. flare, power plant, boiler, air heater, glass melting furnace, kiln, natural gas distribution network, dedicated pipeline or biogas processing facility), (c) Captive power plant(s) (including emergency diesel generators) or power generation sources connected to the grid, which are supplying electricity in the baseline that is displaced by electricity generated by captured LFG in the project activity".</p> <p>The project activity utilizes landfill gas (LFG) from Qizi Mountain Landfill site to generate electricity which is connected to East China Power Grid (ECPG). therefore, the project boundary includes the project activity, Qizi Mountain Landfill site and all the power generation sources connected to the grid (ECPG) to which the project activity is connected. The same is checked by CTI validation team through reviewing the updated GS-VER-</p> | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No |

|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                        |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
|                                                                                     | <p>PDD for renewal of 1st crediting period and site interview with PP and relevant stakeholders and found correct.</p> <p>The estimated annual emission reductions of the project activity is 105,170 tCO<sub>2</sub>e in the 3<sup>rd</sup> crediting period, which is greater than 10,000 tCO<sub>2</sub>eq, the microscale threshold as defined in 3.1.3 (a) of GS4GG RE Activity Requirements, Version 1.3. As per 3.1.3 (b) of GS4GG RE Activity Requirements, Version 1.3, the project activity above microscale threshold is considered as Non microscale project.</p> <p>Also, the estimated annual emission reductions of the project activity is greater than 60,000 tCO<sub>2</sub>e, the threshold as defined in 3.3.2 (b) of GS4GG RE Activity Requirements, Version 1.3 for a Small-Scale project. Therefore, the project activity is considered as large scale project.</p> |                                                                        |
| 3.1.1 of GS4GG Principles & Requirements Version 1.2, (d) Host Country Requirements | <p>The host country of the project activity is P.R.China which has been validated in the updated GS-VER-PDD for renewal of 1st crediting period. The GS4GG allows the states defined as 'Non-Annex I Parties to the Convention' on UNFCCC website as the host country for GS projects. P.R.China is a Non Annex I Party and therefore eligible state for Gold Standard Projects.</p> <p>As per the updated GS-VER-PDD for renewal of 1st crediting period and validation report, FSR was approved by Jiangsu Development and Reform Commission on 11/04/2006. EIA Report was approved by Jiangsu Environment Protection Commission on 23/01/2006.</p> <p>Therefore, CTI validation team confirms that the project activity is in compliance with applicable Host Country's legal, environmental, ecological and social regulations.</p>                                                    | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No |
| 3.1.1 of GS4GG Principles & Requirements Version 1.2, (e) Contact Details           | <p>CTI validation team checked the names of the project participants included in Appendix 2 of GS4GG PDD requested for renewal of the crediting period against the updated GS-VER-PDD for renewal of 1st crediting period.</p> <p>Based on desk review, interviewing with PP and checking GS website, it is confirmed that the project participant from host Party is Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. and the project participant is South Pole Carbon Asset Management Ltd.. Therefore, CTI validation team confirmed that the project participants indicated in the GS4GG PDD are consistent with the names of the registered project participants for the project activity in the GS website.</p>                                                                                                                                           | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No |
| 3.1.1 of GS4GG Principles & Requirements Version 1.2, (f) Legal Ownership           | <p>By checking FSR Approval, EIA Approval issued by the grid company, CTI validation team confirms that the project owner has the full legal ownership of emission reductions that are generated under Gold Standard Certification.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No |
| 3.1.1 of GS4GG Principles & Requirements Version 1.2, (g) Other Rights              | <p>The project makes use of landfill gas from Qizi Mountain Landfill to generate electricity. No other resources except landfill gas resources are used. As per the FSR Approval and EIA approval, the project activity has legal right to make use of landfill gas resources. No disputes or contested rights were identified for the project activity.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No |
| 3.1.1 of GS4GG Principles & Requirements Version 1.2, (h) Official                  | <p>The project does not receive any public funding as per the registered GS-VER-PDD and the updated GS-VER-PDD for renewal of 1st crediting period.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No |

|                                          |                                                                                                                                                                                        |  |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Development Assistance (ODA) Declaration | Also, it is stated in section A.5 of GS4GG-PDD that "There is no public funding from Annex 1 countries and no Official Development Assistance (ODA) involved in the project activity". |  |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

#### 4.4 Incorporation of any relevant updates to the gold standard requirements

Any relevant updates of the project activity to the gold standard requirements is justified according to GS4GG Principles & Requirements Version 1.2 and GS4GG RE Activity Requirements Version 1.3, and relevant GS requirements under GS4GG as below:

##### ▪ Principle 1 – Contribution to Climate Security & Sustainable Development

By checking the updated GS-VER-PDD for renewal of 1st crediting period, and through site interview with PP and relevant stakeholders, CTI validation team confirmed that the project activity would contribute sustainable development in the region in following aspects:

- In recent years, China's electricity consumption has increased dramatically. The project will help ease the tension in power supply and demand.
- The project uses landfill gas to generate electricity to save energy and resources, in line with national and local industry policies. The project activities will replace fossil fuel power generation, and significantly reduce CO<sub>2</sub>, SO<sub>x</sub> and NO<sub>x</sub> emissions, and reduce air pollution and its adverse effects on human health. The project will reduce global warming and climate change by reducing man-made greenhouse gas emissions.
- The project uses landfill gas recovery technology to promote advanced environmental protection technology in China's solid waste treatment industry. The project will improve the local environment through the LFG recycling and processing system.
- The security status of the landfill site will be improved since combustible landfill gas will be properly collected and used for power generation.
- The proposed project activity will bring more employment opportunities for local people. More than 54 people were engaged in construction period and 20 people (including permanent and temporary jobs) are engaged in operation period annually.

The SDG goals of the project activity have been described in the GS4GG PDD of the project activity has been updated as per the latest applied "Guidance for the identification of impacts and indicators for activity level SDG impact reporting". The corresponding monitoring parameters have been updated as per the latest applied methodology ACM0001 version 19.0 is consistent with the updated GS-VER-PDD for renewal of 1st crediting period. CTI checked all the SDG goals of the project activity through document review and site interview with PP and relevant stakeholders, which was:

| SDG Goal                          | Assessment of Methodological choices/approaches for estimating the SDG outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SDG 3 - Good health and wellbeing | <p><b>Relevant SDG Target:</b> By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p><b>Corresponding Indicator:</b> Reduced indoor air pollution</p> <p><b>Corresponding monitoring parameter:</b></p> <p>AQ<sub>y</sub>                      Negative air quality effects (emissions other than GHG) that are prevented by processing units</p> <p><b>Measurement Method:</b> Local Environment Protection Agency will check</p> |

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|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                    | <p>periodically during the operation period.</p> <p><b>QA/QC Process:</b> Report of Environment Protection for Check &amp; Accept from Local Environment Protection Agency has been checked by CTI Validation Team during site visit.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| SDG 4 – Quality education                                          | <p><b>Relevant SDG Target:</b> By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.</p> <p><b>Corresponding Indicator:</b> Skill development</p> <p><b>Corresponding monitoring parameter:</b></p> <p>human and institutional capacity      The project organizes trainings for the staff on the technology and the monitoring of the plant operation, and the emergency and safety procedures, etc.</p> <p><b>Measurement Method:</b> The project owner provides trainings periodically (at least one time a year) on knowledge of sophisticated monitoring equipments, computer operation, safety production, emergency handling, etc. The same will be checked through training records.</p> <p><b>QA/QC Process:</b> Training records signed by trainees will be provided during verification.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| SDG 7 - Affordable and Clean Energy<br><br>SDG 13 – Climate Action | <p><b>Relevant SDG Target:</b> By 2030, increase substantially the share of renewable energy in the global energy mix.</p> <p><b>Corresponding Indicator:</b> MWh of renewable energy generated</p> <p><b>Corresponding monitoring parameter:</b></p> <p><math>EL_{LFG}</math>      Net amount of electricity generated using LFG</p> <p><math>EL_{generation}</math>      Electricity exported to the grid in the year y</p> <p><math>EL_{internal\ consumption}</math>      Electricity imported from the grid in the year y</p> <p>▪ <math>EL_{LFG}</math></p> <p><b>Measurement Method:</b> Continuous measured by electricity meters and at least monthly recorded. The parameter is calculated as: <math>EL_{LFG} = EL_{generation} - EL_{internal\ consumption}</math></p> <p><b>QA/QC Process:</b> Electricity meters will be maintained regularly to ensure the accuracy. The parameter is calculated, no other QA/QC procedure is required.</p> <p>▪ <math>EL_{generation}</math></p> <p><b>Measurement Method:</b> Continuous measured by electricity meters and at least monthly recorded.</p> <p><b>QA/QC Process:</b> The meters are calibrated periodically based on the requirement of local and/or national standard.</p> <p>▪ <math>EL_{internal\ consumption}</math></p> <p><b>Measurement Method:</b> Continuous measured by electricity meters and at least monthly recorded.</p> <p><b>QA/QC Process:</b> The meters are calibrated periodically based on the requirement</p> |

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|                                         | of local and/or national standard.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| SDG 8 - Decent Work and Economic Growth | <p><b>Relevant SDG Target:</b> By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.</p> <p><b>Corresponding Indicator:</b> Increased employment opportunities; Enhanced opportunities for income generation</p> <p><b>Corresponding monitoring parameter:</b></p> <p>Employment                      Number of people employed and fulfilment of labour standards</p> <p>Livelihood of the poor        The project will supply income to workers involved.</p> <ul style="list-style-type: none"> <li>▪ <b>Employment</b></li> </ul> <p><b>Measurement Method:</b> Employee records will be provided by HR and the same have been checked by CTI Validation Team during site visit. Local labor authority will check the fulfillment of labor standard annually.</p> <p><b>QA/QC Process:</b> if any, the certificates issued by local labor authority will be provided during verification.</p> <ul style="list-style-type: none"> <li>▪ <b>Livelihood of the poor</b></li> </ul> <p><b>Measurement Method:</b> HR records will be provided and the same have been checked by CTI Validation Team during site visit.</p> <p><b>QA/QC Process:</b> Pay roll of employees will be used to judge the contribution of employment in local area.</p> |
| SDG 13 – Climate Action                 | <p><b>Relevant SDG Target:</b> 13.2: Integrate climate change measures into national policies, strategies and planning.</p> <p><b>Corresponding indicator:</b> Reduction in GHGs Emissions</p> <p><b>Corresponding monitoring parameter:</b></p> <p>EL<sub>LFG</sub>                      Net amount of electricity generated using LFG</p> <p>EL<sub>generation</sub>              Electricity exported to the grid in the year y</p> <p>EL<sub>internal consumption</sub>    Electricity imported from the grid in the year y</p> <p>W<sub>CH4</sub>                      Methane fraction in the landfill gas</p> <p>T                              Temperature of the landfill gas</p> <p>P                              Pressure of the landfill gas</p> <p>Operation of the energy plant    Operation of the energy plant</p> <p>LFG<sub>electricity,y</sub>              Amount of landfill gas combusted in power plant at Normal Temperature and Pressure</p>                                                                                                                                                                                                                                                                                                                                                                                                              |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <div> <div> <math>R_{LFG,y}</math> </div> <div> <p>The ratio between the LFG collected and the LFG used within the engines on average each year</p> </div> </div>                                                                                                                                                                                                                                                                                              |
|  | <div> <div> <div>Management of SWDS</div> <div>Management of SWDS</div> </div> </div>                                                                                                                                                                                                                                                                                                                                                                          |
|  | <div> <p>Refer to “SDG 7 - Affordable and Clean Energy” part of this table for the detailed measurement method and QA/QC Process of parameters <math>EL_{LFG}</math>, <math>EL_{generation}</math> and <math>EL_{internal\ consumption}</math>.</p> </div>                                                                                                                                                                                                     |
|  | <div> <div> <math>W_{CH4}</math> </div> <div> <p><b>Measurement Method:</b> The parameter will be measured continuously by gas analyzer mounted in the gas pipe work between the gas pre-treatment package and the generator sets.</p> <p><b>QA/QC Process:</b> The gas analyzer should be subject to a regular maintenance and testing regime to ensure accuracy.</p> </div> </div>                                                                           |
|  | <div> <div> <div>T</div> <div> <p><b>Measurement Method:</b> Measured by instruments to determine the density of methane.</p> <p><b>QA/QC Process:</b> Measuring instruments will be maintained regularly and testing regime in accordance to appropriate national/international standards.</p> </div> </div> </div>                                                                                                                                           |
|  | <div> <div> <div>P</div> <div> <p><b>Measurement Method:</b> Measured by instruments to determine the density of methane.</p> <p><b>QA/QC Process:</b> Measuring instruments will be maintained regularly and testing regime in accordance to appropriate national/international standards.</p> </div> </div> </div>                                                                                                                                           |
|  | <div> <div> <div>Operation of the energy plant</div> <div> <p><b>Measurement Method:</b> The parameter is measured by an automatic counter hourly and the data were accumulated annually.</p> <p><b>QA/QC Process:</b> No any QA/QC procedure required for this parameter.</p> </div> </div> </div>                                                                                                                                                            |
|  | <div> <div> <math>LFG_{electricity,y}</math> </div> <div> <p><b>Measurement Method:</b> The parameter is measured by a flow meter continuously. The measured data will be aggregated monthly and yearly.</p> <p><b>QA/QC Process:</b> Measuring instruments will be maintained regularly and testing regime to ensure accuracy.</p> </div> </div>                                                                                                              |
|  | <div> <div> <div><math>R_{LFG,y}</math></div> <div> <p><b>Measurement Method:</b> The actual layout of the entire collection pipelines, which covers from the well to electricity generator will be checked annually.</p> <p><b>QA/QC Process:</b> The actual layout of the entire collection pipelines, which covers from the well to electricity generator will be checked by VVB during verification.</p> </div> </div> </div>                              |
|  | <div> <div> <div>Management of SWDS</div> <div> <p><b>Measurement Method:</b> Refer to the original design of the landfill to ensure that any practice to increase methane generation have been occurring prior to the implementation of the project activity. Any change in the management of the SWDS after the implementation of the project activity should be justified by referring to technical or regulatory specifications .</p> </div> </div> </div> |

|  |                                                       |
|--|-------------------------------------------------------|
|  | <b>QA/QC Process:</b> no QA/QC procedure is required. |
|--|-------------------------------------------------------|

In the GS4GG PDD (version 1.0 dated 25/02/2021), parameters other pollutant and WQ<sub>y</sub> are listed as SDG related parameters. PP is required to clarify the SDG target in relation with other pollutant (noise) and water quality achieved during implementation of the project activity compared with the baseline scenario. In the GS4GG PDD (~~Version 4.0 dated 06/07/2021~~), these two parameters have been classified to ongoing monitoring parameters of Safeguarding Principle Assessment. CTI Validation Team judged the other pollutant (noise) and water quality during implementation of the project activity compared with the baseline scenario and deemed that these two parameters should be ongoing monitored for safeguarding. Therefore, CL01 is closed.

删除[7]: version 2.0 dated 01/04/2021

The SDG impact are not fully estimated ex-ante in B.6.4 of the GS4GG PDD (version 1.0 dated 25/02/2021). therefore, CAR01 was raised. In the GS4GG PDD (~~Version 4.0 dated 06/07/2021~~), the estimated impact of SDG3 of the project activity has been included, which is confirmed by CTI Validation Team to be correct. Therefore, CAR01 is closed.

删除[7]: version 2.0 dated 01/04/2021

The baseline scenario for the project in the third crediting period remains the same as that in the updated GS-VER-PDD for renewal of 1st crediting period (refer to section 4.5 of this report for Re-definition of baseline scenario and any impact of change on the eligibility principles, criteria and requirements) and there is neither any comments were raised by the stakeholder consultation. The data source and reference were provided for each indicator in the GS4GG PDD, and CTI validation team confirmed that assessment to SDG goals of the project activity is appropriate for the renewal of the crediting period.

#### ▪ Principle 2 – Safeguarding Principles

A Safeguarding Principles Assessment has been carried out in the GS4GG Transition Annex of the project activity. In the GS4GG PDD for renewal of 2<sup>nd</sup> crediting period, a safeguarding principles assessment was carried out as per the updated GS4GG principles and requirements as below:

| Safeguarding principles                   | Assessment questions                                                                                                                                                                                                                                                                                                               | Assessment of relevance to the project (Yes/potentially/no) | Justification by the validation team                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Mitigation measure (if required) |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| SOCIAL & ECONOMIC SAFEGUARDING PRINCIPLES |                                                                                                                                                                                                                                                                                                                                    |                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                  |
| Principle 1. Human Rights                 | <p>a. The Project developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights.</p> <p>b. The Project shall not discriminate with regards to participation and inclusion.</p> | No                                                          | <p>a. The Project is not in conflict with the economic livelihood or other issue of the local community. Thus, the Project does not cause any human rights abuse and respects internationally proclaimed human rights issue.</p> <p>b. Project activities are not expected to cause any human rights abuse. China has published relevant regulations and practice in line with the treaties, such as Labor Contract Law to make sure that no action can be taken against human rights. Especially with regard to gender equality, China has published the "Women's Rights Protection Law", which stipulates detailed enforcement rules to provide support and benefits to women.</p> <p>The project does not involve any conflict with livelihood of local people and respect all human rights. Stakeholder consultation had been carried out to take their opinion. The host country prohibits discrimination on the basis of a person's race, sex, religion, place of birth, or social status.</p> | Not Required                     |

|                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
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| <p>Principle 2.<br/>Gender Equality &amp; Women's Rights</p> | <p>1. The Project shall complete the following gender assessment questions in order to inform Requirements, below:</p> <p>a. Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits?</p> <p>b. Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)?</p> <p>c. Is there a possibility that the Project might not take into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities (such as lack of time, child care duties, low literacy or educational levels, or societal discrimination)?</p> <p>d. Does the Project take into account gender roles and the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)?</p> <p>e. Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities?</p> <p>f. Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits?</p> <p>g. Would the Project potentially limit women's</p> | <p>No</p> | <p>1. The project does not decrease women's access to or control of resources.</p> <p>a. No, the Project does not reduce women's access to or control of resources, entitlements and benefits. The project will benefit to local community regardless of gender. The published "Women's Rights Protection Law" is protecting the above benefits for women.</p> <p>b. No, the Project does not create any adverse effect on the local community.</p> <p>c. No, the Project does not consider the gender roles while engaging them and thereby provide equal rights to men and women. As per EIA Report and stakeholder consultation by the project developer, local stakeholder meetings are scheduled considering participation by both Men and Women.</p> <p>d. The project, complying with the "Women's Rights Protection Law" and "Labor Contract Law" does not discriminate the local community on basis of gender or caste or religion and therefore equally serve to all.</p> <p>e. No, the Project design neither increase women's workload nor prevent them from engaging in other activities.</p> <p>f. There is no room for discrimination against women in this Project.</p> <p>g. The Project will not limit women's ability regarding natural resources. The project is solely utilizing Wind power and therefore does not impact natural resources of the region.</p> <p>h. No, in order to protect the physical and mental health of minors, the State Council promulgated the "Prohibition of Child Labor Regulations", prohibiting employers from</p> |  |
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| <p>ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services?</p> <p>h. Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards?</p> <p>2. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women.</p> <p>a. Sexual harassment and/or any forms of violence against women - address the multiple risks of gender -based violence, including sexual exploitation or human trafficking.</p> <p>b. Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.</p> <p>c. Restriction of women's rights or access to resources (natural or economic).</p> <p>d. Recognise women's ownership rights regardless of marital status - adopt project measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources.</p> <p>3. Projects shall apply the principles of non discrimination, equal treatment, and equal pay for equal work, specifically:</p> <p>a. Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and</p> | <p>recruiting minors under the age of 16. Also, China published "Women's Rights Protection Law". Therefore, the Project will not expose women and girls to further risks or hazards.</p> <p>2. The project does not create any direct or indirect impacts on gender equality and/or the situation of women:</p> <p>a. The project developer has a grievance cell which would investigate complaints.</p> <p>b. Minors under the age of 16 are not allowed to be recruited. Project participation by women or girls older than 16 is merely voluntary basis and there is no compulsion on them. The project developer has a grievance cell which would investigate complaints. Through the site interview and checking the list of employees provided by HR department of the project, CTI validation team was able to confirmed that no Minors under the age of 16 were employed, women or girls older than 16 were employed on a voluntary basis, and no slavery, imprisonment, physical and mental drudgery, punishment or coercion to women and girls.</p> <p>c. The Project will not restrict women's rights or access regarding natural resources.</p> <p>The project owner provides trainings periodically (at least one time a year) to employess (both woman and man) on knowledge of sophisticated monitoring equipments, computer operation, safety production, emergency handling, etc. The same has been checked by CTI Validation Team during site visit.</p> <p>Employee records have been provided by HR and the same have been checked by CTI Validation Team during site visit. Also, by checking Pay roll of employees, CTI Validation Team was able to confirm that the project activity could contribute to employment in local area and the salary of</p> |  |
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|                                                            | <p>women in the identified tasks/activities.</p> <p>b. Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status.</p> <p>c. Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits.</p> <p>4. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.</p> |    | <p>employees (both woman and man) is higher than local average level.</p> <p>d. Marital status is completely irrelevant to the Project. The project developer does not discriminate on gender, caste, religion etc.</p> <p>3. The project has applied the principles of non-discrimination and equal treatment; pay &amp; work as follows:</p> <p>a. Yes, the Project has equal opportunity for women and men to contribute both in volunteer and working positions. The project has HR policy and same is followed equally.</p> <p>b. The project developer has a specified HR policy that considers participation by both men and women.</p> <p>c. There is no limit on the access to Project participation and benefits from either of these conditions.</p> <p>4. PP does not involve in any form of discrimination in any kind. China also ratified relevant ILO core conventions on equality, namely Equal Remuneration Convention (Convention No 100) and Discrimination (Employment and Occupation) Convention (Convention No 111)<sup>2</sup>.</p> <p>The parameters "human and institutional capacity", "employment" and "Livelihood of the poor" will be monitored during the 3<sup>rd</sup> crediting period.</p> |              |
| Principle 3: Community Health, Safety & Working Conditions | <p>a. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community.</p>                                                                                                                                                                                                                                                                                                                                                                    | No | <p>a. The project uses landfill gas to generate electricity to save energy and resources, in line with national and local industry policies. The project activities will replace fossil fuel power generation, and significantly reduce CO<sub>2</sub>, SO<sub>x</sub> and NO<sub>x</sub> emissions, and reduce air pollution and its adverse effects on human health. Therefore, the project activity</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Not required |

<sup>2</sup><https://www.ilo.org/dyn/normlex/en/f?p=1000:11001:::>

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|  |  |  | <p>does not have exposure to increased health risks and shall not adversely affect the health of the workers and the community.</p> <p>During site visit, it was confirmed by CTI validation team that the project is located in an existing landfill site. As per the EIA Report, Residential area is far from the project site and there is no significant impact of noises. The same has been confirmed through interviewing local stakeholders.</p> <p>The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments. PP ensures safe access and planned prevention to avoid any kind of accident. The installing and operation of LFG turbines requires trained, dedicated working at height maintenance teams to access risks and select appropriate equipment before any work is carried out.</p> <p>All the safety and hygiene measures are being ensured in order maintain a safe and healthy environment for the workers at site. In case of any emergency, the site incharge will ensure to take adequate action and preventive measures to avoid any miss happening.</p> <p>Necessary health and safety measures will be taken during construction and operation phase, relevant staff will be trained to be able to work with safety. The project is in compliance with all relevant local and national laws.</p> <p>The project developer is committed to the employee's workplace health &amp; safety during all phases of the project. All employees will attend health &amp; safety trainings.</p> <p>Report of Environment Protection for Check &amp; Accept from Local Environment Protection Agency has been checked by CTI Validation Team during site visit.</p> <p>Testing report on air quality, noise quality, and water</p> |  |
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|                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |    | <p>quality issued by authorized institute has been checked by CTI Validation Team during site visit. The air quality is in compliance with relevant national standard GB 16297-1996 and GB 14554-1993. The noise quality is in compliance with relevant national standard GB 12348-2008. The water quality is in compliance with national standard GB/T 14848-1993.</p> <p>The parameters “AQ<sub>y</sub>”, “Other Pollutant”, and “WQ<sub>y</sub>” will be monitored during the 3rd crediting period.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |
| <p>Principle 4. Cultural Heritage, Indigenous Peoples, Displacement and Resettlement</p> <p>4.1 Sites of Cultural and Historical Heritage</p> <p>4.2 Forced Eviction and Displacement</p> <p>4.3 Land Tenure and Other Rights</p> <p>4.4 Indigenous Peoples</p> | <p>4.1 Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, or practices)?</p> <p>4.2 Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?</p> <p>4.3 a. Does the Project require any change to land tenure arrangements and/or other rights?</p> <p>b. For Projects involving land-use tenure, are there any uncertainties with regards land tenure, access rights, usage rights or land ownership?</p> <p>4.4. Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?</p> | No | <p>4.1 This is a registered Large -Scale GS VER project, there are no protected archaeological and cultural heritage sites are reported within the project footprint. As per the EIA Report of the project activity, it is clear that the project site is not a cultural heritage site.</p> <p>As per the EIA Report of the project activity, it is clear that the project site is not a cultural heritage site and the construction of the project activity does not require or cause any form of physical or economic relocation of peoples.</p> <p>Compliance with China's commitment to International Covenant on Economic, Social and Cultural Rights 10.04.79 will ensure no damage to critical cultural heritage.</p> <p>4.2 The project has received the necessary approvals from the local authorities and does not lead to any resettlement. As stated in the EIA report, the construction of the project is far from the residential area, so the project does not require or cause material or economic migration (temporary or permanent, full or partial) of people.</p> <p>4.3 a. The project has all the legal, customary rights on the land of both the sites and does not require any change to land tenure arrangements.</p> | Not required |

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|                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                            |    | <p>b. There are no uncertainties regarding land tenure, access rights, usage rights or land ownership. PP have the rights to use land for the project activity since the relevant approvals have been obtained from the government, eg. The FSR Approval and EIA Approval.</p> <p>4.4. As per the EIA Report, the project is located at sites where there are no any peoples residing. The project location is not nearby the nearest residential area, thus project activity do not have impact on Indigenous Peoples.</p>                                                                                                                                                                                                                                                                            |              |
| Principle 5. Corruption                                                               | 3.5.1 The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.                                                                                                                                                                                                                                                                           | No | <p>3.5.1. The project uses landfill gas recovery technology and does not contribute to or reinforce corruption of any kind. In addition, the project is owned by a private equity company and there are no government subsidies for the project. Therefore, the project does not involve corruption, nor does it participate in corruption, nor is it prone to abuse or corruption of commissioned power.</p> <p>Furthermore, connivance of corruption is an illegal activity in the host country, and the compliance of local labor takes into account that the same PP does not involve or participate in any type of corruption. The project complies with the "United Nations Convention against Corruption." China ratified the "United Nations Convention against Corruption" on 05/09/2011.</p> | Not required |
| ECONOMIC SAFEGUARDING GUIDELINES                                                      |                                                                                                                                                                                                                                                                                                                                                                                                            |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |              |
| Principle 6<br>Economic Impacts<br><br>6.1 Labour Rights<br><br>6.2 Negative Economic | 3.6.1. The Project Developer shall ensure that there is no forced labour and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. Where these are contradictory and a breach of | No | <p>3.6.1. Forced labor is an illegal activity in the host country and the local labor compliance takes into account of the same. Further, China is a party to ILO and forced labour is illegal in China.</p> <p>China has relevant laws and regulations in place prohibiting forced and compulsory labor, such as the Labour Contract Law, Women's Rights Protection Law, Prohibition of Child Labor Regulation. The project fully complies with the</p>                                                                                                                                                                                                                                                                                                                                               | Not Required |

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
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| Consequences | <p>one or other cannot be avoided, then guidance shall be sought from Gold Standard.</p> <p>a. Workers shall be able to establish and join labour organisations.</p> <p>b. Working agreements with all individual workers shall be documented and implemented. These shall at minimum comprise:</p> <p>(i) Working hours (must not exceed 48 hours per week on a regular basis), AND</p> <p>(ii) Duties and tasks, AND</p> <p>(iii) Remuneration (must include provision for payment of overtime), AND</p> <p>(iv) Modalities on health insurance, AND</p> <p>(v) Modalities on termination of the contract with provision for voluntary resignation by employee, AND</p> <p>(vi) Provision for annual leave of not less than 10 days per year, not including sick and casual leave.</p> <p>The Project Developer shall justify that the employment model applied is locally and culturally appropriate.</p> <p>3.6.2 Child labour, as defined by the ILO Minimum Age Convention is not allowed.</p> <p>The Project Developer shall use adequate and verifiable mechanisms for age verification in recruitment procedures. Exceptions are children for work on their families' property as long as:</p> <p>(a) Their compulsory schooling (minimum of 6 schooling years) is not hindered, AND</p> |  | <p>relevant laws and respects fundamental right of employee.</p> <p>The project owner provides trainings periodically (at least one time a year) to employees (both woman and man) on knowledge of sophisticated monitoring equipments, computer operation, safety production, emergency handling, etc. The same has been checked by CTI Validation Team during site visit.</p> <p>Employee records have been provided by HR and the same have been checked by CTI Validation Team during site visit. Also, by checking Pay roll of employees, CTI Validation Team was able to confirm that the project activity could contribute to employment in local area and the salary of employees (both woman and man) is higher than local average level.</p> <p>The parameters "human and institutional capacity", "employment" and "Livelihood of the poor" will be monitored during the 3<sup>rd</sup> crediting period.</p> <p>a. The Labor Contract Law highly protects the collective bargaining rights of the workers' federation. The project fully respects the rights of employees in accordance with all labor-related laws recognized by China. Compliance with the law is subject to government inspections and rulings.</p> <p>b. The Labor Contracts are in place for all individual employees. And all the Labor Contracts in compliance with labor laws are documented and implemented. The Labor Contracts stipulate working hours, duties and tasks, salary and payment of overtime, insurances, modalities on termination of the contract and provision for annual leave. Through site interview, checking the HR records and Personnel Management Regulations, CTI was able to confirm that the working hours was not exceeding 48 hours per week on a regular basis and the annual leave was at least 10 days per year determined by the working years, not</p> |  |
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|                                                    | <p>(b) The tasks they perform do not harm their physical and mental development, AND</p> <p>(c) The opinions and recommendations of an Expert Stakeholder shall be sought and demonstrated as being included in the Project design.</p> <p>(d) The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.</p> <p>6. Does the project cause negative economic consequences during and after project implementation, e.g., for vulnerable and marginalised social groups in targeted communities?</p> |    | <p>including sick and casual leave.</p> <p>Through site interview, CTI validation team was able to confirm that the project prefers the local employment in order that the culture is maintained at project site.</p> <p>3.6.2 The country have strict prohibition for child labour. Thus project does not involve child labour neither in construction nor at operation of project activity. In the HR policy is also mentioned that no child labour will be entertained. The same was confirmed by CTI validation team through site interview.</p> <p>The project follows the health, safety and environment guidelines at project site. The project ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.</p> <p>6. The project activity created local employment opportunities during the assembly and installation of power generation equipment during project construction period. Also, the project activity provided long-term working positions during the operation period. The installation of the project activity helps to promote advanced environmental protection technology in China's solid waste treatment industry. Also, it encourages and promotes the technological progress and commercial promotion of China's grid-connected renewable energy power generation. Therefore, the project will not cause negative economic consequences during and after project implementation.</p> |              |
| ENVIRONMENTAL & ECOLOGICAL SAFEGUARDING PRINCIPLES |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |
| Principle 7. Climate and Energy                    | a. Will the Project increase greenhouse gas emissions over the Baseline Scenario?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | No | a. The project reduces Greenhouse Gas (GHG) emissions and fossil fuel usage compared to the baseline scenario.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Not required |

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| 7.1 Emissions                                 | b. Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?                              |    | b. The purpose of the project is to use landfill gas from Qizi Mountain Landfill site for power generation. When the equipment is under maintenance, it may use electricity from some national grids. It does not use power or fuel resources from the local grid or to provide energy for other local users.                                                                                                              |              |
| 7.2 Energy Supply                             |                                                                                                                                                                                                                                  |    |                                                                                                                                                                                                                                                                                                                                                                                                                            |              |
| Principle 8 Water                             | a. Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity? |    | a. Being a Large-scale LFG recovery and power generation project, there is no impact of water resources. As per EIA report, the impact of the project on the natural or existing patterns of watercourses, groundwater and/or watersheds is negligible.                                                                                                                                                                    |              |
| 8.1. Impact on Natural Water Patterns/Flows   | b. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? If 'Yes' or 'Potentially' proceed to question 2.                                   | No | b.This is unlikely by a landfill gas recovery and power generation project. As per the EIA Report, the project activity will not cause additional erosion and/or water body instability or disrupt the natural pattern of erosion.                                                                                                                                                                                         | Not required |
| 8.2 Erosion and/or Water Body Instability     | c. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?                                                                                                                            |    | c. The risk of erosion is unlikely by the project.                                                                                                                                                                                                                                                                                                                                                                         |              |
| Principle 9 Environment, Ecology and Land Use | Does the Project involve the use of land and soil for production of crops or other products?                                                                                                                                     | No | As per EIA Report, the project uses landfill gas to generation electricity. Which is located in the existing Qizi Mountain Landfill Site. It does not involve the use of land and soil for production of crops or other products.                                                                                                                                                                                          | Not required |
| 9.1. Landscape Modification and Soil          |                                                                                                                                                                                                                                  |    |                                                                                                                                                                                                                                                                                                                                                                                                                            |              |
| 9.2. Vulnerability to Natural Disaster        | Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?                                             | No | the project uses landfill gas to generation electricity, which is located in the existing Qizi Mountain Landfill Site. The project activity will help to improve the security status of the landfill site since combustible landfill gas will be properly collected and used for power generation. The project will not be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, | Not required |

|                            |                                                                                                                                                                            |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
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|                            |                                                                                                                                                                            |    | erosion, flooding, drought or other extreme climatic conditions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |
| 9.3. Genetic Resources     | Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)? | No | The project uses landfill gas to generation electricity. Thus this section is Not Applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Not required |
| 9.4. Release of pollutants | Could the project potentially result in the release of pollutants to the environment?                                                                                      | No | <p>The project uses landfill gas to generate electricity to save energy and resources. The project activities will replace fossil fuel power generation, and significantly reduce CO<sub>2</sub>, SO<sub>x</sub> and NO<sub>x</sub> emissions, and reduce air pollution and its adverse effects on human health. The project will reduce global warming and climate change by reducing man-made greenhouse gas emissions.</p> <p>The project activity will help to improve the security status of the landfill site since combustible landfill gas will be properly collected and used for power generation.</p> <p>As per EIA Report, necessary measures will be taken to minimize the negative environmental impact. Report of Environment Protection for Check &amp; Accept from Local Environment Protection Agency has been checked by CTI Validation Team during site visit.</p> <p>Testing report on air quality, noise quality, and water quality issued by authorized institute has been checked by CTI Validation Team during site visit. The air quality is in compliance with relevant national standard GB 16297-1996 and GB 14554-1993. The noise quality is in compliance with relevant national standard GB 12348-2008. The water quality is in compliance with national standard GB/T 14848-</p> | Not required |

|                                                          |                                                                                                                                                                                    |    |                                                                                                                                                                                                                                                                                                                      |              |
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|                                                          |                                                                                                                                                                                    |    | 1993.<br><br>The parameters “AQ <sub>y</sub> ”, “Other Pollutant”, and “WQ <sub>y</sub> ” will be monitored during the 3rd crediting period.                                                                                                                                                                         |              |
| 9.5. Hazardous and Non-hazardous Waste                   | Will the Project involve the manufacture, trade, release, and/ or use of hazardous and nonhazardous chemicals and/or materials?                                                    | No | Not applicable for LFG recovery and power generation project.<br><br>The project activities will replace fossil fuel power generation, and significantly reduce CO <sub>2</sub> , SO <sub>x</sub> and NO <sub>x</sub> emissions, and reduce air pollution and its adverse effects on human health.                   | Not required |
| 9.6. Pesticides & Fertilisers                            | Will the Project involve the application of pesticides and/or fertilisers?                                                                                                         | No | NA. As LFG recovery and power generation project. the Project does not involve the application of pesticides and/or fertilizers.                                                                                                                                                                                     | Not required |
| 9.7. Harvesting of Forests                               | Will the Project involve the harvesting of forests?                                                                                                                                | No | The project is located in the existing Qizi Mountain Landfill site, the project does not involve the harvesting of forests.                                                                                                                                                                                          | Not required |
| 9.8. Food                                                | Does the project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?                             | No | Not applicable for LFG recovery and power generation project.                                                                                                                                                                                                                                                        | Not required |
| 9.9. Animal husbandry                                    | Will the Project involve animal husbandry?                                                                                                                                         | No | The project is located in the existing Qizi Mountain Landfill site, therefore does not alter biodiversity and High conservation value areas, and there are no rare and valuable plant and animal species.                                                                                                            | Not required |
| 9.10 High Conservation Value Areas and Critical Habitats | Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified? | No | Being LFG recovery and power generation project located in the existing Qizi Mountain Landfill site, it does not affect or alter largely intact or HCV ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified.<br><br>As per the EIA Report of the project activity, it is clear that | Not required |

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|                               |                                                                                                                                                                                                                                                                                              |    | <p>the project site is not a cultural heritage site.</p> <p>The project has been developed under transparent communication with local communities.</p>                                                                 |              |
| 9.11<br>Endangered<br>Species | <p>Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)?</p> <p>Does the Project potentially impact other areas where endangered species may be present through transboundary affects?</p> | No | <p>As per the EIA Report, there are no endangered species identified as potentially being present within the Project boundary and the project does not impact other areas where endangered species may be present.</p> | Not required |

### ▪ Principle 3 – Stakeholder Inclusivity

The project is registered as a GS-VER project and a stakeholder consultation has been carried out in 28/03/2008 or the first crediting period. For renewal of 1<sup>st</sup> crediting period, a stakeholder consultation has been carried out in the period from 08/10/2015 to 08/11/2015.

For renewal of 2nd crediting period, a stakeholder consultation was carried out during the period from January 2021 to March 2021. The stakeholders identified by the project participant were local villagers who are the major population of the particular area, project proponent representatives, O&M staff, and local government staff.

An announcement including the project information is public at the entrance of local community on 25/01/2021 by Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. to collect comments from local stakeholders. By checking photos of announcement posted at the entrance of local community and site interview with some local residents, it is confirmed by CTI validation team that no comments were received up to the date of the completion of the consultation.

By checking mail provided by PP, CTI validation team confirmed that an email was sent by PP to GS secretariat, GS Experts and NGOs to collect comments from global stakeholders during the period from 01/02/2021 to 31/03/2021. Also, by checking website of PP (<https://www.southpole.com/gold-standard-and-other-stakeholder-consultations>), it is confirmed that PP upload GS4GG PDD of the project activity on 01/02/2021, conducting an online GS stakeholder consultation for the renewal of the crediting period in order to collect the comments from NGOs. CTI validation team confirmed that no comments were received up to the date of the completion of the consultation through all the channels. Also after checking the GS4GG PDD, it is confirmed that such content has been included.

Based on the interview of the local representatives, CTI validation team was informed that no complaints against to the project activity was received in the first and second crediting period by the local stakeholders, no big impact of the project activity was observed. CTI validation team confirmed that stakeholder consultation for the renewal of 2nd crediting period was held by project participants and no comments were received up to the date of the completion of the consultation.

Furthermore, by checking the filled questionnaires from local stakeholders, it is confirmed by CTI validation team that communications with local stakeholders was being carried out every year by the project owner. There are no negative comments received for the project were identified from the questionnaires. Also, via checking questionnaires from local stakeholders and interviewing with staff from local Environment Protection Agency and local residents during the site visit, it is confirmed by the CTI that during the implementation stage of this monitoring period, local authority has conducted spot checks on the implementation of the project periodically as per the request from the local governments' regulations. It is confirmed by CTI that there were no negative comments and issues from the local stakeholders in the project operation period and the project passed all the periodic spot checks by local government.

The evidences for activities in relation with local stakeholder consultation carried out by project owner have been provided to DOE but not described in the GS4GG PDD (version 1.0 dated 25/02/2021). Therefore, CL02 was raised.

By checking GS4GG PDD ([Version 4.0 dated 06/07/2021](#)), CTI validation team confirmed that the activities in relation with local stakeholder consultation carried out by the project owner has been included. Up to the date of the completion of the consultation, no comments were received from any of the channels. Therefore, CL02 was closed.

删除[7]: Version 2.0 dated 01/04/2021

### ▪ Principle 4 – Demonstration of Real Outcomes

In the updated GS-VER-PDD for renewal of 1st crediting period, detailed assessment has been applied to establish the sustainable development matrix under GS principles version 2.2. In the GS4GG PDD for renewal of 2nd crediting period, the SD monitoring plan was updated under GS4GG requirements and the latest methodology in table below.

An organizational structure is provided in GS4GG PDD. The functions such as data collection, aggregation, verification, calculation, archiving, as well as the maintenance of equipment etc. have been defined. Quality assurance and quality control procedures for recording, maintaining and data archiving etc. will be ensured according to CDM EB rules. The calibration of the meter will be implemented as per national standard. An emergency treatment process has been defined in GS4GG PDD when the meter is in malfunction. Data management and quality control system are quoted in GS4GG PDD. The monitoring staffs will be trained based on the training program described in GS4GG PDD.

CTI validation team confirms that the monitoring plan contains all necessary parameters which have been clearly described in GS4GG PDD and that the means of monitoring described in the plan complies with the requirements of the methodology.

| SDG Indicator                                                                                                                                                  | Parameter                                                                                   | Monitoring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <b>SDG 3 - Good health and wellbeing:</b><br><br>Reduced indoor air pollution<br><br><b>Safeguarding Principle 3.1, 9.4</b>                                    | AQ <sub>y</sub>                                                                             | <p>Processing units will be maintained periodically according to relevant national standards. Local Environment Protection Agency will publish a report after project starts to operate and will check at least annually during the operation period. Report of Environment Protection for Check &amp; Accept from Local Environment Protection Agency has been checked by CTI Validation Team during site visit.</p> <p>Testing report issued by authorized institute will be provided during verification. The air quality is in compliance with relevant national standard GB 16297-1996 and GB 14554-1993.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>SDG 4 – Quality education:</b><br><br>Skill development<br><br><b>Safeguarding Principle 2.2, 6.1</b>                                                       | human and institutional capacity                                                            | <p>The project owner provides trainings periodically (at least one time a year) on knowledge of sophisticated monitoring equipments, computer operation, safety production, emergency handling, etc. The same will be checked through training records. Training records signed by trainees will be provided during verification.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>SDG 7 - Affordable and Clean Energy:</b><br><br>MWh of renewable energy generated<br><br><b>SDG 13 – Climate Action:</b><br><br>Reduction in GHGs Emissions | EL <sub>LFG</sub><br><br>EL <sub>generation</sub><br><br>EL <sub>internal consumption</sub> | <p>Continuous measured by electricity meters and at least monthly recorded. The parameter is calculated as: <math>EL_{LFG} = EL_{generation} - EL_{internal\ consumption}</math>.</p> <p>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<sub>LFG</sub>). 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<sub>generation</sub>). M5 and M6 with accuracy of 2 were installed to monitor the electricity imported from the grid by the project (EL<sub>internal consumption</sub>). 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.</p> <p>The electricity generation is monitored continuously and record monthly by the project owner as well as Grid Company. At the 00:00 of second last day of each month, the project owner and Grid Company read and check the main meter and record the data. Based on the data, the Grid Company provides an electricity receipt confirmation to the project owner and then the project owner provides an electricity sales invoice to the Grid Company for selling electricity generation.</p> |

|                                                                                                                                                   |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <b>SDG 8 - Decent Work and Economic Growth:</b><br><br>Increased employment opportunities<br><br><b>Safeguarding Principle 2.2, 6.1</b>           | Employment                    | Employee records will be provided by HR and the same have been checked by CTI Validation Team during site visit. Local labor authority will check the fulfillment of labor standard annually. if any, the certificates issued by local labor authority will be provided during verification.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>SDG 8 - Decent Work and Economic Growth:</b><br><br>Enhanced opportunities for income generation<br><br><b>Safeguarding Principle 2.2, 6.1</b> | Livelihood of the poor        | HR records will be provided and the same have been checked by CTI Validation Team during site visit. Pay roll of employees will be used to judge the contribution of employment in local area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>SDG 13 – Climate Action:</b><br><br>Reduction in GHGs Emissions                                                                                | W <sub>CH4</sub>              | The parameter will be measured continuously by gas analyzer mounted in the gas pipe work between the gas pre-treatment package and the generator sets. The accuracy of gas analyzer is 0.5%. The gas analyzer should be subject to a regular maintenance and testing regime to ensure accuracy.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                                                                                                                   | T                             | Measured by temperature meter to determine the density of methane. The accuracy of temperature meter is 1.5% which should be subject to a regular maintenance and testing regime in accordance to appropriate national/international standards.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                                                                                                                   | P                             | Measured by pressure meter to determine the density of methane. The accuracy of pressure meter is 2.5% which should be subject to a regular maintenance and testing regime in accordance to appropriate national/international standards.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                                                                                                                   | Operation of the energy plant | Operation of the energy plant would be monitored by the project owner to ensure methane destruction is claimed for methane used in electricity plant when it is operational.<br><br>The parameter is measured by an automatic counter hourly and the data were accumulated annually.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                   | LFG <sub>electricity,y</sub>  | The parameter is measured by a flow meter continuously. The measured data will be aggregated monthly and yearly. The accuracy of flow meter is 0.5% which will be maintained regularly and testing regime to ensure accuracy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                   | R <sub>LFG, y</sub>           | The actual layout of the entire collection pipelines, which covers from the well to electricity generator will be checked annually. The actual layout of the entire collection pipelines, which covers from the well to electricity generator will be checked by VVB during verification. If the collected LFG is only used for generating electricity, not flaring or venting, this ratio can be nearly closed to 100%, at least higher than 65%.<br><br>In the updated GS-VER-PDD for renewal of 1 <sup>st</sup> crediting period, the parameter R <sub>LFG,y</sub> are monitored both ex ante and ex post, however, this parameter was only monitored ex-ante in the GS4GG PDD (version 1.0 dated 25/02/2021). therefore, CL04 was |

|                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|                                 |                    | raised. In the GS4GG PDD ( <u>Version 4.0 dated 06/07/2021</u> ), the parameter $R_{LFG,y}$ has been monitoring both ex-ante and ex-post. The detailed monitoring process have been included in the GS4GG PDD ( <u>Version 4.0 dated 06/07/2021</u> ), which are confirmed by CTI Validation Team to be correct. Therefore, CL04 is closed.                                                                                                                                                                                                                                                                                                                                               |
|                                 | Management of SWDS | Refer to the original design of the landfill to ensure that any practice to increase methane generation have been occurring prior to the implementation of the project activity. Any change in the management of the SWDS after the implementation of the project activity should be justified by referring to technical or regulatory specifications . no QA/QC procedure is required.                                                                                                                                                                                                                                                                                                   |
| Safeguarding Principle 3.1, 9.4 | WQ <sub>y</sub>    | <p>The landfill leachate will be collected properly and transported to Suzhou Gaoxin wastewater treatment plant finally. Local Environment Protection Agency will publish a report after project starts to operate and will check periodically during the operation period.</p> <p>Report of Environment Protection for Check &amp; Accept from Local Environment Protection Agency has been checked by CTI Validation Team during site visit.</p> <p>Testing report issued by authorized institute will be provided during verification. The water quality is in compliance with national standard GB/T 14848-1993.</p>                                                                  |
|                                 | Other Pollutant    | <p>The noise during the construction period was disappear when the construction work finished. Measures will be taken in order to minimize the noise impacts during the operation period. Local Environment Protection Agency will publish a report after project starts to operate and will check periodically during the operation period. Report of Environment Protection for Check &amp; Accept from Local Environment Protection Agency has been checked by CTI Validation Team during site visit.</p> <p>Testing report issued by authorized institute will be provided during verification. The noise quality is in compliance with relevant national standard GB 12348-2008.</p> |

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- The parameters Management of SWDS and  $LFG_{electricity,y}$  listed in the updated GS-VER-PDD for renewal of 1st crediting period are not monitored in the GS4GG PDD (version 1.0 dated 25/02/2021). Therefore, CAR02 was raised. In the GS4GG PDD (Version 4.0 dated 06/07/2021), the parameters Management of SWDS and  $LFG_{electricity,y}$  listed in the updated GS-VER-PDD for renewal of 1<sup>st</sup> crediting period are included. The corresponding monitoring process has been correctly described, which is consistent with the updated GS-VER-PDD for renewal of 1<sup>st</sup> crediting period and applied methodology ACM0001 version 19.0. Therefore, CAR02 is closed.

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▪ **Principle 5 – Financial Additionality & Ongoing Financial Need**

The additionality of the project activity has been demonstrated in-line with "Tool for the demonstration and assessment of additionality", Version 07.0. All steps of the additionality tool have been demonstrated in the updated GS-VER-PDD for renewal of 1st crediting period and validation report. CTI validation team checked the additionality in GS-CER-PDD and Final validation report [https://impact.sustain-cert.com/public\\_projects/740](https://impact.sustain-cert.com/public_projects/740) and found the same to be correct and appropriate.

As per the updated GS-VER-PDD for renewal of 1st crediting period, the project start date was 26/11/2005 when 1st Stage Project started construction. The project was registered as GS VER project under GS Standard version 1.0 and renewed under GS Standard version 2.2, where the time span between submitting the requirement documents for preliminary review (time of first submission) and the project start date was not required. Furthermore, based on the Transition Annex approved by GS, the project activity has been successfully transitted to GS4GG project activity.

In the GS4GG PDD (version 1.0 dated 25/02/2021), the project start date was 01/01/2007 when the project started operation. This date was not consistent with the project start date described in updated GS-VER-PD for renewal of 1<sup>st</sup> crediting period. Therefore, CL02 was raised. In the GS4GG PDD ([Version 4.0 dated 06/07/2021](#)), the project start date has been updated to 26/11/2005, when 1<sup>st</sup> Stage Project started construction, consistent with that in the GS-VER-PDD for renewal of 1st crediting period. Therefore, CL04 is closed.

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During the registration stage, the prior consideration of revenues from Gold Standard certification has been demonstrated by VVB. Carbon revenues derived from Gold Standard certification have been playing a very important role in helping project developer to realise SDGs, e.g keeping the project operational and ongoing maintenance, assisting GS VER verifications, providing job opportunities to local residents and trainings for employees, raising public awareness on climate change, etc..

Furthermore, CTI Validation Team has checked what impacts the carbon revenue via sales of credits has brought to the project via document review and interviews. CTI Validation Team has checked the ERPA between PO and South Pole Carbon Asset Management Ltd., payment records by South Pole Carbon Asset Management Ltd., project verification & issuance frequency, project operation status, and PO's activities, and found the PO has been constantly receiving carbon revenue to support the project's operation. Also activities such as donations to local school, condolences to elderly and poor people, science lecture, etc. are supported by the carbon revenue. Therefore CTI Validation Team has concluded the finance derived GS certification is material to the ongoing sustainability of the project.

#### **4.5 Re-definition of baseline scenario and any impact of change on the eligibility principles, criteria and requirements**

CTI validation team confirms that there have been no changes in the relevant national and/or sectoral regulations on building a landfill gas generation project since 1<sup>st</sup> and 2<sup>nd</sup> crediting period. On the other hand, the baseline scenario for the project remains the same as that in the first crediting period according to the outcome of "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" Version 03.0.1 indicated below. According to the PS (Version 02.0), the demonstration of the validity of the original baseline or its update does not require a reassessment of the baseline scenario, but rather an assessment of the GHG emission reductions that would have resulted from that scenario.

The following steps from the "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" Version 03.0.1 were applied to assess the continued validity of the baseline and/or to update the baseline at the renewal of a crediting period:

##### **Step 1: Assess the validity of the current baseline for the next crediting period**

The requirement of the CDM executive board requires assessing the impact of new relevant national and/or sectoral policies and circumstances on the baseline. The validity of the current baseline is assessed using the following Sub-steps:

##### **Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies**

The current baseline in the GS4GG PDD remains the same as in the updated GS-VER-PDD for renewal of 1<sup>st</sup> crediting period.

CTI validation team first checked CJJ17-88: Technical code for municipal solid waste sanitary landfill which was still valid at 1992 when the project started construction. In the CJJ17-88, it was specified that concentration limits of methane in the air and measurements should be taken to vent methane, however it mainly focuses on safety concerns and other than on LFG flaring or utilization. Then CJJ17-88 was replaced by GB50869-2013, which also stated that landfill gas should be utilized (for gas that can be utilized) or flared (for gas that cannot be utilized) which could found also in GB16889-2008 and CJJ133-2009. However, this is only a recommendation, not a compulsory requirement. As long as the landfill fulfils the safety requirements, the government must not enforce the utilization of LFG which is the same situation before the implementation of LFG project in the project site.

Although China government encouraged the collection and utilization of LFG from waste dumps in the past few years, due to financial and technological difficulties most of the landfills just release LFG directly into the atmosphere without any recovery and flaring system. In 02/2007, the Ministry of Construction issued “Circular on the Outcome of Nationwide Inspection on Hazard-free Treatment of Domestic Waste Landfill Sites”. As per this Circular, by the end of year 2005, only 27 landfills of 372 landfills (7.26%) across 31 provinces, autonomous regions and municipalities in China have landfill gas recovery and utilization facilities. Only the landfills in CDM mode or few with investment from the government count have LFG flaring or utilization systems in operation. Moreover, according to the “Development Report on China Treatment Industry of Urban Domestic Refuse in 2013”, until 2012 there were 795 prefectural and municipal domestic waste landfills in operation, with only 50 landfills having LFG recovery and utilization facilities by the end of year 2013. By checking [a report from Beijing Junhe Law Firm<sup>1</sup>](#), “2019 Statistical Yearbook of Urban and Rural Construction”<sup>2</sup> and “2020 China Biomass Power Generation Industry Development Report”<sup>3</sup>, it is confirmed by CTI Validation Team that up to 2019, there were 1,885 sanitary landfills in cities and counties across China. Only 216 biogas power generation projects were installed and connected to the grid. The coverage is less than 12%. Also, by checking the relevant law and regulations, CTI Validation Team confirmed that from 2013 till now, no laws and regulations are issued by Chinese government that compulsorily requires the installation of LFG recovery and usage facilities for landfill sites. Therefore, it is obvious that LFG gas flaring or utilization is still exceptional and that under common practice conditions the LFG is not flared in China in baseline conditions.

Therefore, it is justifiable to conclude that the specific requirements on LFG recovery and utilization as prescribed in the above mentioned regulations have not been systematically enforced and that non-compliance with those requirements, namely uncontrolled emission of LFG to the atmosphere without any recovery and utilization, has been and is still widespread in China.

In conclusion, on the basis of above content, CTI validation team is able to confirm the flaring and utilization of LFG in GB16889-2008, CJJ133-2009 and GB50869-2013 have not been systematically and non-compliance with those policies, namely uncontrolled emission of LFG to the atmosphere without any recovery and utilization, has been and is still widespread in China, which have come into effect after the submission of the project activity for validation or the submission of the previous request for renewal of the crediting period and are applicable at the time of requesting renewal of the crediting period. The LFG directly released into atmosphere is the baseline scenario of the project activity in the third crediting period, which is the same as the second crediting period.

#### **Step 1.2: Assess the impact of circumstances**

The baseline scenario identified at the validation of the project activity was the continuation of the current practice without any investment. Baseline emissions are primarily derived from the release of LFG to the atmosphere from the landfill. The project activity recovers and utilises the LFG from an existing landfill, Suzhou Qizi Mountain Landfill. At the time of requesting renewal of the crediting period, the landfill is still in operation confirmed by site

<sup>1</sup> <http://www.csrc.gov.cn/pub/newsite/fxjgb/cybzczl/zcwxihf/202104/P020210420559819067188.pdf>

<sup>2</sup> <http://www.mohurd.gov.cn/xyti/tjzljxxytjgb/jstjni/>

<sup>3</sup> <http://www.cn-bea.com/productinfo/515739.html>

visit. So the release of LFG continues. Market characteristics do not otherwise impact the baseline emissions from the release of LFG.

As the project is under normal operation confirmed by site visit which is in line with the design of the FSR, then the condition used to determine baseline emissions in the previous crediting is still valid.

In conclusion, as per the requirement of the sub-step, it has been assessed that there were no impact of circumstances existing at the time of requesting of the crediting period on the current baseline scenarios.

**Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.**

Not applicable, as the project does not involved in any continuation of use of current baseline equipment(s) which are equipment of electricity power grid. Also, the first commissioning of equipment(s) in the project activity is in 01/2007 and the design lifetime of the project activity is 25 years, the remain lifetime of the project activity is clearly longer than remain 7 years crediting period, then no investment would be involved.

**Step 1.4: Assessment of the validity of the data and parameters**

According to the requirement of the “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”, if any of the data and parameters that were only determined at the start of the crediting period and not monitored during the crediting period and not valid anymore, the current baseline needs to be updated for the subsequent crediting period.

The Designated National Authority (DNA) of China issued the notice “2019 Baseline Emission Factors for Regional Power Grid in China” on 29/12/2020, which was the latest grid data available for the project. The emission factors  $EF_{grid,OM,y}$  of the CEPG the project connected have been updated according to the latest data available on 29/12/2020. As per the “Tool to calculate the emission factor for an electricity system” version 07.0, for the third crediting period, the build margin emission factor ( $EF_{grid,BM,y}$ ) calculated for the second crediting period should be used, and for the LFG project,  $w_{OM} = 0.25$  and  $w_{BM} = 0.75$  for the third crediting period. The values of parameters have been updated for the third crediting period in the GS4GG PDD.

Except build margin emission factor ( $EF_{grid,BM,y}$ ), the rest parameters mentioned above determined at the start of the 2<sup>nd</sup> crediting period are not valid any more for the 3<sup>rd</sup> crediting period and the baseline emissions need to be updated for the 3<sup>rd</sup> crediting period with the application of the new data available. Also for the default value of Model correction factor ( $\phi$ ) and Global warming potential of CH<sub>4</sub> ( $GWP_{CH4}$ ), value for both parameters have been updated in the 3<sup>rd</sup> crediting period according to the latest data.

**Step 2: Update the current baseline and the data and parameters**

**Step 2.1: Update the current baseline**

As the baseline scenario of the project activity is still sustained in the 3<sup>rd</sup> crediting period, no update would be required.

**Step 2.2: Update the data and parameters**

In the GS4GG PDD, the calculation of the grid emission factor ( $EF_{grid,CM,y}$ ) is calculated based on the latest data which was available at the commencement of validation. The Designated National Authority (DNA) of China issued the notice “2019 Baseline Emission Factors for Regional Power Grid in China” on 29/12/2020 and the calculations are based on official, publicly available national statistical yearbooks published annually: China Energy Statistical Yearbook and China Electric Power Yearbook.

The grid emission factor is determined as Combined Margin (CM), combination of the Operating Margin (OM) and Build Margin (BM), which is for the second 7-year crediting period following the “Tool to calculate the emission factor for an electricity system” Version 07.0.

CTI validation team has confirmed that the baseline emission factor was appropriate for this GS project activity as:

The ECPG is selected as the electricity system of the project activity. Simple OM method (method a) is applied for calculating OM emission factor because according to the data from China Electric Power Yearbook 2014-2018, the low-cost/must-run resources in the latest five years (2013-2017) constitute less than 50% of the total grid generation. Ex-ante option with a 3-year generation-weighted average is chosen to account for  $EF_{grid,OMsimple,y}$ . Option B of simple OM is selected for the calculation based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system (option A was denied because necessary data for Option A is not available). As a result,  $EF_{grid,OMsimple,y}$  is calculated to be 0.7921 tCO<sub>2</sub>e/MWh as a generation weighted average for the year 2015-2017.

Because plant specific fuel consumption and electricity generation data are not publicly available in China, the Guidance caused by DNV's request for deviation of Chinese project activities for the baseline methodology AM0005 has been applied for calculating the build margin (BM) emission factor of this project activity:

- Based on the most recent years energy balance of the ECPG, calculating the proportions of CO<sub>2</sub> emissions from the coal-fired, oil-fired and gas-fired power plants in total CO<sub>2</sub> emissions of thermal power plants and taking them as weight of each type of plant in the calculations;
- Based on the most advanced commercialized technologies which applied by the coal-fired, oil-fired and gas-fired power plants, calculating the emission factor of thermal power plants in ECPG. This approach is more conservative as it assumes all recently built plants have the fuel efficiency as that of the most advanced commercialized technologies;
- Calculating the  $EF_{grid,BM,y}$  through multiplying the emission factor of thermal power plants by the percentage share of thermal power plants installed capacity addition within all recently built installed capacity. The proper year is selected so that it is the closest time when the last 20% of installed capacity was built.

As per the latest version "Tool to calculate the emission factor for an electricity system" Version 07.0, for the third crediting period, the build margin emission factor calculated for the second crediting period should be used. CTI Validation Team confirmed that the build margin emission factor determined in the GS4GG PDD is correct.

As a result, the BM emission factor, as shown in APPENDIX 3 in the GS4GG PDD, is estimated to be 0.6861 tCO<sub>2</sub>/MWh which is the same value of 2<sup>nd</sup> crediting period as in the updated GS-VER-PDD for renewal of 1st crediting period, and is fully complying with the latest version "Tool to calculate the emission factor for an electricity system" Version 07.0.

According to the latest version of Tool to calculate the emission factor for an electricity system, the combined baseline emission factor will remain fixed during the second crediting period calculated as follows:

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

As per the "Tool to calculate the emission factor for an electricity system" version 07.0, for the LFG project,  $w_{OM} = 0.25$  and  $w_{BM} = 0.75$  for the third crediting period. As validated above, the CM emission factor of the project is 0.7126 tCO<sub>2</sub>/MWh.

Except grid emission factors, other parameters, i.e. the default value of Model correction factor ( $\phi_{default}$ ) and Global warming potential of CH<sub>4</sub> ( $GWP_{CH_4}$ ) have been updated based on latest data. The detailed updated value and data sources of parameters determined ex-ante have been justified in section 5 of this report.

CTI validation team confirmed that the applied data and parameters are latest available at the time of the project participant requesting renewal of the crediting period and valid for calculation of baseline grid emission factor of the 3<sup>rd</sup> crediting period.

#### 4.6 Any gold standard activity, product and methodology-specific requirements

At the time of renewal of 1st crediting period, the applied methodology of the project was ACM0001 "Flaring or use of landfill gas" (version 16.0). The GS4GG PDD for renewal of the 2nd crediting period applied the latest available version of the same methodology ACM0001, Version 19.0, which is valid from 14/06/2019 on-wards, hence it meets the condition that for renewal of the crediting period, the methodology should not be changed.

The applicability of the methodology was re-assessed based on the knowledge of the project from the initial validation, subsequent validation and the confirmation from the PPs.

By checking the Feasibility study report (FSR) and site interview with PP and relevant stakeholders, CTI validation team was able to confirm that:

- The project activity installed a new LFG capture system in an existing SWDS where no LFG capture system was installed prior to the implementation of the project activity;
- The project activity uses the captured LFG for generating electricity;
- No organic waste would be recycled in the absence of the project activity;
- In the absence of the project activity, LFG would be released into the atmosphere, which complies with regulations;
- LFG collected is used for electricity generation with internal combustion engines and generators, and the electricity generated is supplied to East China Power Grid;
- The methodology is not in combination with other approved methodologies;
- The management of the SWDS in the project activity is not changed during the crediting period compared to the situation prior to the implementation of the project activity.

Therefore, CTI validation team confirms the project meets each of the applicability conditions of the methodology; it also meets all the other stipulations and limitations mentioned in the other sections of the methodology; the continued validity of the baseline is assessed and the emissions which would be resulted from the baseline scenario are updated at the start of the 3rd crediting period, as per the requirements of ACM0001, Version 19.0.

#### 4.7 Demonstration of OFN compliance to latest version of applied methodology

Refer to section 4.4, principle 5 of this report.

### 5 Estimation of emission reductions for the crediting period

The calculations of baseline emissions, project emissions, leakage and emission reductions have been checked by CTI validation team. The parameters and equations presented in the GS4GG PDD and further documentation have been compared with the information and requirements presented in applied methodology and respective tools.

#### (1) BASELINE EMISSION

The calculation of the baseline emissions followed the procedures described in the methodology ACM0001 (Version 19.0). Baseline emissions are updated and calculated as:

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

Where:

$BE_y$  = Baseline emissions in year y (tCO<sub>2</sub>e/yr)

$BE_{CH_4,y}$  = Baseline emissions of methane from the SWDS in year y (tCO<sub>2</sub>e/yr)

$BE_{EC,y}$  = Baseline emissions associated with electricity generation in year y (tCO<sub>2</sub>e/yr)

$BE_{HG,y}$  = Baseline emissions associated with heat generation in year y (tCO<sub>2</sub>e/yr)

$BE_{NG,y}$  = Baseline emissions associated with natural gas use in year y ( $tCO_2e/yr$ )

As confirmed by checking FSR, supply of LFG through a natural gas distribution network is not included in the project activity. Moreover, the project participants do not intend to utilize the LFG for heat generation and nature gas use. Therefore,  $BE_{HG,y} = 0$  and  $BE_{NG,y} = 0$ ; and baseline emissions shall be calculated as below:

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

- Baseline emissions of methane from the SWDS ( $BE_{CH_4,y}$ )

Baseline emissions of methane from the SWDS are determined as follow, based on the amount of methane that is captured under the project activity and the amount that would be captured and destroyed in the baseline (such as due to regulations). In addition, the effect of methane oxidation that is present in the baseline and absent in the project is taken into account:

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

Where:

$BE_{CH_4,y}$  = Baseline emissions of methane from the SWDS in year y ( $tCO_2e/yr$ )

$OX_{top\_layer}$  = 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 ( $tCH_4/yr$ )

$F_{CH_4,BL,y}$  = Amount of methane in the LFG that would be flared in the baseline in year y ( $tCH_4/yr$ )

$GWP_{CH_4}$  = Global warming potential of  $CH_4$  ( $tCO_2e/tCH_4$ )

#### Ex post determination of $F_{CH_4,PJ,y}$

According to ACM0001, during the crediting period,  $F_{CH_4,PJ,y}$  shall be determined ex post as follow:

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

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 ( $tCH_4/yr$ )

$F_{CH_4,flared,y}$  = Amount of methane in the LFG which is destroyed by flaring in year y ( $tCH_4/yr$ )

$F_{CH_4,EL,y}$  = Amount of methane in the LFG which is used for electricity generation in year y ( $tCH_4/yr$ )

$F_{CH_4,HG,y}$  = Amount of methane in the LFG which is used for heat generation in year y ( $tCH_4/yr$ )

$F_{CH_4,NG,y}$  = Amount of methane in the LFG which is sent to the natural gas distribution network and/or to the trucks in year y ( $tCH_4/yr$ )

Through checking FSR, CTI Validation Team confirmed there is no heat generation and natural gas distribution network involved in the project activity. Therefore  $BE_{HG,y} = 0$  and  $BE_{NG,y} = 0$ .

The above equation could be simplified as equation as below:

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

$F_{CH_4,EL,y}$  is determined using the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” and monitoring the working hours of the power plant(s), boiler(s), air heater(s), glass melting furnace(s) and kiln(s), so that no emission reduction are claimed for methane destruction during non-working hours. This is taken into account by monitoring the hours that the equipment utilizing the LFG is operating in year y ( $OP_{j,h,y}$ ).

$$F_{CH_4,flared,y} = F_{CH_4,sent\_flare,y} - PE_{flare,y} / GWP_{CH_4}$$

Where:

$F_{CH_4,flared,y}$  = Amount of methane in the LFG which is destroyed by flaring in year y ( $tCH_4/yr$ )

$F_{CH_4,sent\_flare,y}$  = Amount of methane in the LFG which is sent to the flare in year y ( $tCH_4/yr$ )

$PE_{flare,y}$  = Project emissions from flaring of the residual gas stream in year y ( $tCO_2e/yr$ )

$GWP_{CH_4}$  = Global warming potential of  $CH_4$  ( $tCO_2e/tCH_4$ )

#### Ex ante estimation of $F_{CH_4,PJ,y}$

An ex ante estimate of  $F_{CH_4,PJ,y}$  is required to estimate baseline emission of methane from the SWDS (according to equation above in order to estimate the emission reductions of the proposed project activity. It is determined as follows:

$$F_{CH_4,PJ,y} = \eta_{PJ} \times BE_{CH_4,SWDS,y} / GWP_{CH_4}$$

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 ( $tCH_4/yr$ )

$BE_{CH_4,SWDS,y}$  = Amount of methane in the LFG that is generated from the SWDS in the baseline scenario in year y ( $tCO_2e/yr$ )

$\eta_{PJ}$  = Efficiency of the LFG capture system that will be installed in the project activity

$GWP_{CH_4}$  = Global warming potential of  $CH_4$  ( $tCO_2e/tCH_4$ )

$BE_{CH_4,SWDS,y}$  is determined by using the methodological tool “Emissions from solid waste disposal sites” (version 08.0)

$$BE_{CH_4,SWDS,y} = \varphi_y \times (1 - f_y) \times GWP_{CH_4} \times (1 - OX) \times \frac{16}{12} \times F \times DOC_{f,y} \times MCF_y \times \sum_{x=1}^y \sum_j (W_{j,x} \times DOC_j \times e^{-k_j \times (y-x)} \times (1 - e^{-k_j}))$$

Where:

$BE_{CH_4,SWDS,y}$  = Baseline methane emissions occurring in year y generated from waste disposal at a SWDS during a time period ending in year y ( $tCO_2e/yr$ )

x = Years in the time period in which waste is disposed at the SWDS, extending from the first year in the time period (x = 1) to year y (x = y)

y = Year of the crediting period for which methane emissions are calculated (y is a consecutive period of 12 months)

|              |   |                                                                                                                                                             |
|--------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $DOC_{f,y}$  | = | Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction)                |
| $W_{j,x}$    | = | Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)                                                              |
| $\phi_y$     | = | Model correction factor to account for model uncertainties for year y                                                                                       |
| $f_y$        | = | Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y |
| $GWP_{CH_4}$ | = | Global warming potential of $CH_4$ ( $tCO_2e/tCH_4$ )                                                                                                       |
| OX           | = | Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)                             |
| F            | = | Fraction of methane in the SWDS gas (volume fraction)                                                                                                       |
| $MCF_y$      | = | Methane correction factor for year y                                                                                                                        |
| $DOC_j$      | = | Fraction of degradable organic carbon in the waste type j (weight fraction)                                                                                 |
| k            | = | Decay rate for the waste type j (1 / yr)                                                                                                                    |
| j            | = | Type of residual waste or types of waste in the MSW                                                                                                         |

The following guidance has been taken into account when applying the tool:

- (a)  $f_y$  in the tool shall be assigned a value of 0 because the amount of LFG that would have been captured and destroyed is already accounted for in equation above;
- (b) In the tool, x begins with the year that the SWDS started receiving wastes (e.g. the first year of SWDS operation); and
- (c) Sampling to determine the fractions of different waste types is not necessary because the waste composition can be obtained from previous studies.

#### Determination of $F_{CH_4,BL,y}$

This step provides a procedure to determine the amount of methane that would have been captured and destroyed (by flaring) in the baseline due to regulatory or contractual requirements, to address safety and odour concerns, or for other reasons (collectively referred to as requirement in this step). The four cases in the Table below are distinguished. The appropriate case should be identified and the corresponding instructions followed.

Table: Cases for determining methane captured and destroyed in the baseline

| Situation at the start of the project activity | Requirement to destroy methane | Existing LFG capture and destruction system |
|------------------------------------------------|--------------------------------|---------------------------------------------|
| Case 1                                         | No                             | No                                          |
| Case 2                                         | Yes                            | No                                          |
| Case 3                                         | No                             | Yes                                         |
| Case 4                                         | Yes                            | Yes                                         |

It is confirmed that there was no regulation or standard that enforces methane destruction in LFG when Qizi Mountain Landfill began operating. Besides, Qizi Mountain Landfill did not collect and utilize the LFG prior to the

implementation of the project activity, and no landfill gas capture and destruction system existing. Therefore, CTI validation team is able to confirm that this project activity is satisfied with the situation of Case 1: No requirement to destroy methane exits and no existing LFG capture and destruction system.

In this situation:  $F_{CH_4,BL,y} = 0$

- Baseline emissions associated with electricity generation ( $BE_{EC,y}$ )

The baseline emissions associated with electricity generation in year  $y$  ( $BE_{EC,y}$ ) shall be calculated using the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”. When applying the tool:

(i) The electricity sources  $k$  in the tool correspond to the sources of electricity generated identified in the selection of the most plausible baseline scenario; and

(ii)  $EC_{BL,k,y}$  in the tool is equivalent to the net amount of electricity generated using LFG in year  $y$  ( $EG_{PJ,y}$ ).

Where:

$BE_{EC,y}$  = Baseline emissions from electricity consumption in year  $y$  ( $tCO_2/yr$ )

$EC_{BL,k,y}$  = 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  $y$  ( $tCO_2/MWh$ )

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

$k$  = Sources of electricity consumption in the baseline

#### Determination of $EF_{EL,k,y}$

The emission factor ( $EF_{EL,k,y}$ ) is equal to  $EF_{grid,CM,y}$  and the result of baseline emission of the project activity is shown as below:

| Year                           | Emission Reduction by Methane recovery from the landfill in the absence of the project activity during the 3 <sup>rd</sup> crediting period ( $BE_{CH_4,SWDS,y}$ ) ( $tCO_2e$ ) | Emission Reduction from Electricity Generation ( $tCO_2e$ ) | Baseline Emissions ( $tCO_2e$ ) |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------|
| 22/4/2021-31/12/2021 (254days) | 78912                                                                                                                                                                           | 10555                                                       | 89467                           |
| 2022                           | 74874                                                                                                                                                                           | 14391                                                       | 89265                           |
| 2023                           | 102098                                                                                                                                                                          | 13656                                                       | 115754                          |
| 2024                           | 96894                                                                                                                                                                           | 12960                                                       | 109854                          |
| 2025                           | 91964                                                                                                                                                                           | 12301                                                       | 104265                          |
| 2026                           | 87294                                                                                                                                                                           | 11676                                                       | 98970                           |
| 2027                           | 82870                                                                                                                                                                           | 11084                                                       | 93954                           |
| 1/1/2028-21/4/2028 (112days)   | 24142                                                                                                                                                                           | 10524                                                       | 34666                           |
| Total ( $tCO_2e$ )             | 639048                                                                                                                                                                          | 97147                                                       | <b>736195</b>                   |
| Average ( $tCO_2e$ )           | 91292                                                                                                                                                                           | 13878                                                       | <b>105170</b>                   |

In the GS4GG PDD (version 1.0 dated 25/02/2021), the Emission Reduction by Methane recovery from the landfill in the absence of the project activity during the third crediting period ( $BE_{CH_4,SWDS,y}$ ) are not consistent with that in the ER calculation spreadsheet. Also, emission Reduction from Electricity Generation during the third crediting period are not mentioned. Therefore, CAR03 was raised. In the GS4GG PDD ([Version 4.0 dated 06/07/2021](#)), the  $BE_{CH_4,SWDS,y}$  in the 3rd crediting period has been revised to be consistent with that in the ER calculation spreadsheet. The emission Reductions from Electricity Generation during the 3rd crediting period have been listed which is confirmed by CTI Validation Team to be correct. Therefore, CAR03 is closed.

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CTI validation team confirms that all data sources and assumptions are appropriate, and calculations are correct, applicable to the project activity and will result in a conservative estimate of the emission reductions.

## (2) Project emissions

According to ACM0001 (Version 19.0), the project emissions are calculated using the following equation:

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

Where:

$PE_y$  = Project emissions in year y (tCO<sub>2</sub>/yr)

$PE_{EC,y}$  = Emissions from consumption of electricity due to the project activity in year y (tCO<sub>2</sub>/yr)

$PE_{FC,y}$  = Emissions from consumption of fossil fuel due to the project activity, for purpose other than electricity generation, in year y (tCO<sub>2</sub>/yr)

$PE_{DT,y}$  = Emissions from the distribution of compressed/liquefied LFG using trucks, in year y (tCO<sub>2</sub>/yr)

$PE_{SP,y}$  = Emissions from the supply of LFG to consumers through a dedicated pipeline, in year y (tCO<sub>2</sub>/yr)

As confirmed by checking FSR, there is no fossil fuel consumption in the project activity, therefore,  $PE_{FC,y} = 0$ .

As confirmed by checking FSR, there is no distribution of compressed/liquefied LFG using trucks involved in the project activity, therefore,  $PE_{DT,y} = 0$ .

As confirmed by checking FSR, there is no supply of LFG to consumers through a dedicated pipeline involved in the project activity, therefore,  $PE_{SP,y} = 0$ .

The project emissions from consumption of electricity by the project activity ( $PE_{EC,y}$ ) shall be calculated using the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”. When applying the tool:

(i)  $EC_{PJ,k,y}$  in the tool is equivalent to the amount of electricity consumed by the project activity in year y ( $EC_{PJ,y}$ ); and

(ii) If in the baseline a proportion of LFG is destroyed ( $F_{CH_4,BL,y} > 0$ ), then the electricity consumption in the tool ( $EC_{PJ,j,y}$ ) should refer to the net quantity of electricity consumption (i.e. the increase due to the project activity). The determination of the amount of electricity consumed in the baseline shall be transparently documented in the PDD.

Considering when electricity generators will be under regular maintenance and sometimes shut down, the electricity will be purchased from the Ease China Power Grid during this period of time. For ex ante calculation,  $EC_{PJ,y} = 0$  as simplified consideration since it is estimated to be small amount in the project implementation and it will be monitored during the crediting period, CTI validation team consider this is acceptable.

As per the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”, emissions from consumption of electricity due to the project activity in year y will be calculated as follows:

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

Where:

- $PE_{EC,y}$  = Project emissions from electricity consumption in year y (tCO<sub>2</sub>/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 (tCO<sub>2</sub>/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

For the determination of  $EF_{EL,y}$ , CTI validation team confirmed Option A1 is chosen which is correct as:

Option A1: Calculate the combined margin emission factor of the applicable electricity system, using the procedures in the latest approved version of the “Tool to calculate the emission factor for an electricity system” ( $EF_{EL,j,y} = EF_{grid,CM,y}$ ).

Therefore, CTI is able to confirm that project emissions can be ex ante calculated as:  $PE_y = 0$  Based on document review, CTI validation team regards this consideration is correct, and in line with methodology ACM0001, Version 19.0.

### (3) Leakage

According to the methodology, the project activity leakage does not take into account, then no leakage according to ACM0001, Version 19.0, and leakage is zero.

### (4) Emission reductions

According to ACM0001, Version 19.0, emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

- $ER_y$  = Emission reductions in year y (t CO<sub>2</sub>e/yr)  
 $BE_y$  = Baseline emissions in year y (t CO<sub>2</sub>e/yr)  
 $PE_y$  = Project emissions in year y (t CO<sub>2</sub>e/yr)

For this project, the estimated amount of GHG emission reductions ( $ER_y$ ) is 736,195 tCO<sub>2</sub>e during the 3<sup>rd</sup> crediting period (7 years) from 22/04/2021 to 21/04/2028, resulting in estimated average annual emission reductions of 97975 tCO<sub>2</sub>e.

The parameters determined ex-ante which used to calculate emission reductions during renewal of 2nd crediting period have been updated as per ACM0001, Version 19.0 and corresponding methodological tools. The same parameters in GS4GG PDD have been checked and confirmed by CTI validation team to be correct. The data sources are listed in below table:

| SDG Indicator           | Data and parameter | Unit                  | Ex-ante value | Data source                                                                                          |
|-------------------------|--------------------|-----------------------|---------------|------------------------------------------------------------------------------------------------------|
| 13 Emissions Reductions | $EF_{grid,OM,y}$   | tCO <sub>2</sub> /MWh | 0.7921        | “2019 Baseline Emission Factors for Regional Power Grids in China” issued by China DNA ON 29/12/2020 |
|                         | $EF_{grid,BM,y}$   | tCO <sub>2</sub> /MWh | 0.6861        | “2014 Baseline Emission Factors for Regional Power Grids in China” issued by China DNA               |
|                         | $w_{OM}$           | %                     | 25            | “Tool to calculate the emission factor for an electricity system” (Version 07.0)                     |

|                                                             | $W_{BM}$              | %                                                | 75                                | “Tool to calculate the emission factor for an electricity system” (Version 07.0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|-------------------------------------------------------------|-----------------------|--------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------|------------------------|----|-----------------------------------------------|----|-------------------------------------------------------------|----|----------|----|-----------------------------|----|------------------------------------------|---|
|                                                             | $EF_{grid,CM,y}$      | tCO2/MWh                                         | 0.7126                            | Calculated as per “Tool to calculate the emission factor for an electricity system” (Version 07.0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $GWP_{CH4}$           | tCO <sub>2</sub> e/tCH <sub>4</sub>              | 28                                | Default value from “applicability of global warming potential for gold standard for the global goals projects (published on 27/10/2020)”                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $\varphi_{default}$   | /                                                | 0.75                              | The parameter is the same as $\varphi$ in the updated GS-VER PDD for renewal of 2 <sup>nd</sup> crediting period. Default value from “Emissions from solid waste disposal site (v8.0)”                                                                                                                                                                                                                                                                                                                                                                                      |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $OX_{top\_layer}$     | /                                                | 0.1                               | Default value from ACM0001, Version 19.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $F_{CH4,BL,y}$        | tCH <sub>4</sub> /yr                             | 0                                 | Confirmed by checking FSR and interview with staff from Qizi Mountain Landfill Site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $NCV_{CH4}$           | TJ/t CH <sub>4</sub>                             | 0.0504                            | Default value from ACM0001, Version 19.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $\eta_{PJ}$           | Dimensionless                                    | 50%                               | Default value from ACM0001, Version 19.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $D_{CH4}$             | tCH <sub>4</sub> /m <sup>3</sup> CH <sub>4</sub> | 0.0007168                         | Default value from “Tool to determine the mass flow of a greenhouse gas in a gaseous stream (v3.0)”, At standard temperature and pressure (0 degree Celsius and 1.013 bar) the density of methane is 0.0007168 tCH <sub>4</sub> /m <sup>3</sup> CH <sub>4</sub> .                                                                                                                                                                                                                                                                                                           |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $BE_{CH4,SWDS,y}$     | tCO <sub>2</sub> e                               | 91,292                            | Yearly average emission reduction by methane recovery from the landfill in the absence of the project activity during the 3rd crediting period<br>Calculated as per the Methodological tool of “Emissions from solid waste disposal sites” (Version 08.0).                                                                                                                                                                                                                                                                                                                  |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $F$                   | /                                                | 0.5                               | Default value from “Emissions from solid waste disposal sites” (Version 08.0).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $DOC_{f,default}$     | /                                                | 0.5                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $MCF_{default}$       | /                                                | 0.8                               | Default value from “Emissions from solid waste disposal sites” (Version 08.0).<br>0.8 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.                                                                                                                                                                                                                                                                                                         |                |                       |                        |    |                                               |    |                                                             |    |          |    |                             |    |                                          |   |
|                                                             | $DOC_j$               | /                                                | Refer to the “data source” column | Default value from “Emissions from solid waste disposal sites” (Version 08.0).<br><table><tr><th>Waste type <math>j</math></th><th><math>DOC_j</math> (% wet waste)</th></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 |
| 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 sites” (Version 08.0).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                    |  |                                 |  |                     |  |                  |                  |                   |                    |                  |                                                      |      |      |       |      |                               |      |      |       |       |                      |                                                            |      |      |       |      |                   |                                                        |      |       |       |      |
|----------------------|------------------------------------------------------------|---------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--|---------------------------------|--|---------------------|--|------------------|------------------|-------------------|--------------------|------------------|------------------------------------------------------|------|------|-------|------|-------------------------------|------|------|-------|-------|----------------------|------------------------------------------------------------|------|------|-------|------|-------------------|--------------------------------------------------------|------|-------|-------|------|
|                      | $k_j$                                                      | 1/yr                            | Refer to the “data source” column | <table><tr><th colspan="2" rowspan="2">Waste type <math>j</math></th><th colspan="2">Boreal and Temperate (MAT≤20°C)</th><th colspan="2">Tropical (MAT&gt;20°C)</th></tr><tr><th>Dry (MAP/PET &lt;1)</th><th>Wet (MAP/PET &gt;1)</th><th>Dry (MAP&lt;1000m m)</th><th>Wet (MAP &gt;1000 mm)</th></tr><tr><td rowspan="2">Slowly degrading</td><td>Pulp, paper, cardboard (other than sludge), textiles</td><td>0.04</td><td>0.06</td><td>0.045</td><td>0.07</td></tr><tr><td>Wood, wood products and straw</td><td>0.02</td><td>0.03</td><td>0.025</td><td>0.035</td></tr><tr><td>Moderately degrading</td><td>Other (non-food) organic putrescible garden and park waste</td><td>0.05</td><td>0.10</td><td>0.065</td><td>0.17</td></tr><tr><td>Rapidly degrading</td><td>Food, food waste, sewage sludge, beverages and tobacco</td><td>0.06</td><td>0.185</td><td>0.085</td><td>0.40</td></tr></table> <p>For a waste type disposed in a SWDS that can not clearly be classified to one of the waste types in the table above, decay rate of waste types with similar characteristics will be adopted. In case of sludge from pulp and paper industry, a conservative value of 0.03 shall be used.</p> | Waste type $j$     |  | Boreal and Temperate (MAT≤20°C) |  | Tropical (MAT>20°C) |  | Dry (MAP/PET <1) | Wet (MAP/PET >1) | Dry (MAP<1000m m) | Wet (MAP >1000 mm) | Slowly degrading | Pulp, paper, cardboard (other than sludge), textiles | 0.04 | 0.06 | 0.045 | 0.07 | Wood, wood products and straw | 0.02 | 0.03 | 0.025 | 0.035 | Moderately degrading | Other (non-food) organic putrescible garden and park waste | 0.05 | 0.10 | 0.065 | 0.17 | Rapidly degrading | Food, food waste, sewage sludge, beverages and tobacco | 0.06 | 0.185 | 0.085 | 0.40 |
| Waste type $j$       |                                                            | Boreal and Temperate (MAT≤20°C) |                                   | Tropical (MAT>20°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |  |                                 |  |                     |  |                  |                  |                   |                    |                  |                                                      |      |      |       |      |                               |      |      |       |       |                      |                                                            |      |      |       |      |                   |                                                        |      |       |       |      |
|                      |                                                            | Dry (MAP/PET <1)                | Wet (MAP/PET >1)                  | Dry (MAP<1000m m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Wet (MAP >1000 mm) |  |                                 |  |                     |  |                  |                  |                   |                    |                  |                                                      |      |      |       |      |                               |      |      |       |       |                      |                                                            |      |      |       |      |                   |                                                        |      |       |       |      |
| Slowly degrading     | Pulp, paper, cardboard (other than sludge), textiles       | 0.04                            | 0.06                              | 0.045                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.07               |  |                                 |  |                     |  |                  |                  |                   |                    |                  |                                                      |      |      |       |      |                               |      |      |       |       |                      |                                                            |      |      |       |      |                   |                                                        |      |       |       |      |
|                      | Wood, wood products and straw                              | 0.02                            | 0.03                              | 0.025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.035              |  |                                 |  |                     |  |                  |                  |                   |                    |                  |                                                      |      |      |       |      |                               |      |      |       |       |                      |                                                            |      |      |       |      |                   |                                                        |      |       |       |      |
| Moderately degrading | Other (non-food) organic putrescible garden and park waste | 0.05                            | 0.10                              | 0.065                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.17               |  |                                 |  |                     |  |                  |                  |                   |                    |                  |                                                      |      |      |       |      |                               |      |      |       |       |                      |                                                            |      |      |       |      |                   |                                                        |      |       |       |      |
| Rapidly degrading    | Food, food waste, sewage sludge, beverages and tobacco     | 0.06                            | 0.185                             | 0.085                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.40               |  |                                 |  |                     |  |                  |                  |                   |                    |                  |                                                      |      |      |       |      |                               |      |      |       |       |                      |                                                            |      |      |       |      |                   |                                                        |      |       |       |      |
|                      | $R_{LFG, y}$                                               | %                               | Higher than 65%, close to 100%.   | If the collected LFG is only used for generating electricity, not flaring or venting, this ratio can be nearly closed to 100%, at least higher than 65%.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |  |                                 |  |                     |  |                  |                  |                   |                    |                  |                                                      |      |      |       |      |                               |      |      |       |       |                      |                                                            |      |      |       |      |                   |                                                        |      |       |       |      |

Based on the parameters, calculations and results presented in the sections above the implementation of the project activity will result in an average ex-ante estimation of emission reduction conservatively calculated to be 105,170 tCO<sub>2</sub>e per year for the selected 7 years crediting period. Total emission reductions during the 3rd crediting period are estimated to be 736,195 tCO<sub>2</sub>e.

The project was a GS-VER project. The CTI validation team had checked for double counting by reviewing the following relevant registries that could hold RECs from the considered project activity: <http://cdm.unfccc.int>, <http://www.terra.org/>, <https://registry.goldstandard.org/projects>, <http://www.irecstandard.org/>.

CTI validation team cross-checked the whole calculation process of emission reductions in the GS4GG PDD against referenced sources and applied methodology and tools. Based on the information reviewed, it can be confirmed that in the GS4GG PDD (Version 4.0 dated 06/07/2021), the sources used are correctly quoted and interpreted, the calculation processes are complete and replicable, and the calculation outcomes are reasonable and accurate.

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In conclusion, CTI confirms that:

- (a) All assumptions and data used by the project participants are listed in the GS4GG PDD, including their references and sources;
- (b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the GS4GG PDD;
- (c) All values used in the GS4GG PDD are considered reasonable in the context of the proposed GS project activity;

(d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;

(e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the GS4GG PDD.

## 6 Validation opinion

Shenzhen CTI International Certification Co., Ltd (CTI), commissioned by South Pole Carbon Asset Management Ltd. (PP of the project activity), has performed a validation for renewal of the crediting period of Suzhou Qizi Mountain Landfill Gas Recovery Project (GS ID: 397) and hereafter referred to as "the project". The validation was performed in accordance with Gold Standard GS4GG for GS-CERs, the UNFCCC criteria for the Clean Development Mechanism and host country criteria.

The validation scope is defined as an independent and objective review of the GS4GG PDD (Version 4.0 dated 06/07/2021), the project's baseline update, monitoring plan and other relevant documents, and consisted of the following three phases:

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1. Desk review of the project design and baseline and monitoring plan;
2. site interview with PP and relevant stakeholders;
3. Resolution of outstanding issues and the issuance of the final validation report and opinion.

After checking Verification Report of previous monitoring period, CTI Validation Team identified no FARs. In the course of the validation, 3 Corrective Action Request (CAR), 4 Clarification Requests (CL) or Forward Action Request (FAR) were raised for the proposed GS project activity in relation to all relevant Gold Standard requirements including GS4GG Principles & Requirements, Version 1.2; GS4GG Activity Requirements: RE Activity Requirements, Version 1.3; and Gold Standard for the Global Goals Requirements & Guidelines for Transition of Projects from Previous Versions of the Standard, Version 1.1. Until issuance of this version of validation report, the raised CL and CAR was successfully closed.

The review of the GS4GG PDD (Version 4.0 dated 06/07/2021) and additional background documents, the subsequent follow up interviews, together with the review of comments by Parties and Stakeholders, have provided CTI with sufficient evidence to confirm that the project has satisfied the stated criteria.

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The validation covered all project components and issues that need to be validated for renewal of the 2nd crediting period as a GS project. In our opinion, CTI hereby confirms that the project correctly applied the latest version of baseline and monitoring methodology ACM0001, Version 19.0 and meets relevant UNFCCC and Gold Standard requirements for renewal of the crediting period.

The first 7-year renewable crediting period is from 22/04/2007 to 21/04/2014, the second 7-year crediting period is from 22/04/2014 to 21/04/2021. The PP is applying for a third crediting period started from 22/04/2021 to 21/04/2028. CTI hereby requests for renewal of the crediting period for the project, which is expected to achieve annual average emission reductions of 105,170 tCO<sub>2</sub>e, total emission reductions of 736,195 tCO<sub>2</sub>e, within the 7 years at the 3rd crediting period.

## APPENDIX A: RESOLUTION OF CORRECTIVE ACTION REQUEST/CLARIFICATION REQUEST/FORWARD ACTION REQUEST

Table 1. CL from this validation

| CL ID                                                                                                                                                                                                                                                                                                                                                                                                                              | 01 | Section no. | 4.4 | Date: 15/02/2021        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|-----|-------------------------|
| <b>Description of CL</b>                                                                                                                                                                                                                                                                                                                                                                                                           |    |             |     |                         |
| For parameters other pollutant and $WQ_y$ , please clarify the SDG target achieved during implementation of the project activity compared with the baseline scenario.                                                                                                                                                                                                                                                              |    |             |     |                         |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                                                |    |             |     | <b>Date: 30/03/2021</b> |
| Other pollutant (noise) and $WQ_y$ should belongs to safeguarding monitoring parameters. The noise and water quality should meet relevant national standard. Their monitoring method and QA/QC are listed in section B.7.1 of PDD.                                                                                                                                                                                                 |    |             |     |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                                               |    |             |     |                         |
| Renewal GS4GG PDD_GS397_Suzhou LFG                                                                                                                                                                                                                                                                                                                                                                                                 |    |             |     |                         |
| <b>Validation conclusion</b>                                                                                                                                                                                                                                                                                                                                                                                                       |    |             |     | <b>Date: 06/04/2021</b> |
| In the GS4GG PDD ( <a href="#">Version 4.0 dated 06/07/2021</a> ), the parameters other pollutant and $WQ_y$ have been classified to the ongoing monitoring parameters in the Safeguarding Principle Assessment. Their corresponding monitoring process have been included in the GS4GG PDD ( <a href="#">Version 4.0 dated 06/07/2021</a> ), which are confirmed by CTI Validation Team to be correct. Therefore, CL01 is closed. |    |             |     |                         |

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| CL ID                                                                                                                                                                                                                                                                | 02 | Section no. | 4.4 | Date: 15/02/2021        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|-----|-------------------------|
| <b>Description of CL</b>                                                                                                                                                                                                                                             |    |             |     |                         |
| The evidences for activities in relation with local stakeholder consultation carried out by project owner have been provided to VVB but not described in the GS4GG PDD (version 1.0 dated 25/02/2021). Please clarify the reasons.                                   |    |             |     |                         |
| <b>Project participant response</b>                                                                                                                                                                                                                                  |    |             |     | <b>Date: 06/04/2021</b> |
| The activities in relation with local stakeholder consultation are added in updated GS4GG PDD.                                                                                                                                                                       |    |             |     |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                 |    |             |     |                         |
| Renewal GS4GG PDD_GS397_Suzhou LFG                                                                                                                                                                                                                                   |    |             |     |                         |
| In the GS4GG PDD ( <a href="#">Version 4.0 dated 06/07/2021</a> ), activities in relation with local stakeholder consultation carried out by project owner have been described, which is confirmed by CTI Validation Team to be correct. Therefore, CL 02 is closed. |    |             |     |                         |

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| CL ID                                                                                                                                                                                                                                                                                                                                                  | 03 | Section no. | 4.4 | Date: 15/02/2021        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|-----|-------------------------|
| <b>Description of CL</b>                                                                                                                                                                                                                                                                                                                               |    |             |     |                         |
| In the updated GS-VER-PDD for renewal of 1 <sup>st</sup> crediting period, the parameter $R_{LFG, y}$ are monitored both ex ante and ex post, however, this parameter was only monitored ex-ante in the GS4GG PDD (version 1.0 dated 25/02/2021). PP is required to clarify the reasons.                                                               |    |             |     |                         |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                    |    |             |     | <b>Date: 30/03/2021</b> |
| $R_{LFG, y}$ should be monitored both ex-ante and ex-post. It is revised in the updated GS4GG PDD.                                                                                                                                                                                                                                                     |    |             |     |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                   |    |             |     |                         |
| Renewal GS4GG PDD_GS397_Suzhou LFG                                                                                                                                                                                                                                                                                                                     |    |             |     |                         |
| <b>Validation conclusion</b>                                                                                                                                                                                                                                                                                                                           |    |             |     | <b>Date: 06/04/2021</b> |
| In the GS4GG PDD ( <a href="#">Version 4.0 dated 06/07/2021</a> ), the parameter $R_{LFG, y}$ has been monitoring both ex-ante and ex-post. The detailed monitoring process have been included in the GS4GG PDD ( <a href="#">Version 4.0 dated 06/07/2021</a> ), which are confirmed by CTI Validation Team to be correct. Therefore, CL03 is closed. |    |             |     |                         |

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| CL ID                                                                                                                                                                                                                                                                                                                                                            | 04 | Section no. | 4.4 | Date: 15/02/2021 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|-----|------------------|
| <b>Description of CL</b>                                                                                                                                                                                                                                                                                                                                         |    |             |     |                  |
| In the GS4GG PDD (version 1.0 dated 25/02/2021) for renewal of 2 <sup>nd</sup> crediting period, the project start date was 01/01/2007 when the project started operation. This date was not consistent with the project start date described in updated GS-VER-PD for renewal of 1 <sup>st</sup> crediting period. Please clarify the reason of the difference. |    |             |     |                  |

|                                                                                                                                                                                                                                                                                                       |                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <b>Project participant response</b>                                                                                                                                                                                                                                                                   | <b>Date:</b> 30/03/2021 |
| In initial version, 01/01/2007 is the project operation date. It is corrected to the construction date, same with the project start date of renewal PDD of 1 <sup>st</sup> crediting period                                                                                                           |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                  |                         |
| Renewal GS4GG PDD_GS397_Suzhou LFG                                                                                                                                                                                                                                                                    |                         |
| <b>Validation conclusion</b>                                                                                                                                                                                                                                                                          | <b>Date:</b> 06/04/2021 |
| In the GS4GG PDD ( <a href="#">Version 4.0 dated 06/07/2021</a> ), the project start date has been updated to 26/11/2005, when 1 <sup>st</sup> Stage Project started construction, consistent with that in the GS-VER-PDD for renewal of 1 <sup>st</sup> crediting period. Therefore, CL04 is closed. |                         |

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**Table 2. CAR from this validation**

|                                                                                                                                                                                                                                 |    |                    |     |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------|-----|-------------------------|
| <b>CAR ID</b>                                                                                                                                                                                                                   | 01 | <b>Section no.</b> | 4.4 | <b>Date:</b> 15/02/2021 |
| <b>Description of CAR</b>                                                                                                                                                                                                       |    |                    |     |                         |
| The SDG impact are not fully estimated ex-ante in B.6.4 of the GS4GG PDD (version 1.0 dated 25/02/2021).                                                                                                                        |    |                    |     |                         |
| <b>Project participant response</b>                                                                                                                                                                                             |    |                    |     | <b>Date:</b> 30/03/2021 |
| The missing SDGs are added in B.6.4 of the updated GS4GG PDD.                                                                                                                                                                   |    |                    |     |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                            |    |                    |     |                         |
| Renewal GS4GG PDD_GS397_Suzhou LFG                                                                                                                                                                                              |    |                    |     |                         |
| <b>Validation conclusion</b>                                                                                                                                                                                                    |    |                    |     | <b>Date:</b> 06/04/2021 |
| In the GS4GG PDD ( <a href="#">Version 4.0 dated 06/07/2021</a> ), the estimated impact of SDG3 of the project activity has been included, which is confirmed by CTI Validation Team to be correct. Therefore, CAR01 is closed. |    |                    |     |                         |

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |                    |     |                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------|-----|-------------------------|
| <b>CAR ID</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 02 | <b>Section no.</b> | 4.4 | <b>Date:</b> 15/02/2021 |
| <b>Description of CAR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |                    |     |                         |
| The parameters Management of SWDS and LFG <sub>electricity,y</sub> listed in the updated GS-VER-PDD for renewal of 1 <sup>st</sup> crediting period are not monitored in the GS4GG PDD (version 1.0 dated 25/02/2021).                                                                                                                                                                                                                                                            |    |                    |     |                         |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |                    |     | <b>Date:</b> 30/03/2021 |
| The parameters Management of SWDS and LFG <sub>electricity,y</sub> are added in the updated GS4GG PDD                                                                                                                                                                                                                                                                                                                                                                             |    |                    |     |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                                                                                              |    |                    |     |                         |
| Renewal GS4GG PDD_GS397_Suzhou LFG                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |                    |     |                         |
| <b>Validation conclusion</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                    |     | <b>Date:</b> 06/04/2021 |
| In the GS4GG PDD ( <a href="#">Version 4.0 dated 06/07/2021</a> ), the parameters Management of SWDS and LFG <sub>electricity,y</sub> listed in the updated GS-VER-PDD for renewal of 1 <sup>st</sup> crediting period are included. The corresponding monitoring process has been correctly described, which is consistent with the updated GS-VER-PDD for renewal of 1 <sup>st</sup> crediting period and applied methodology ACM0001 version 19.0. Therefore, CAR02 is closed. |    |                    |     |                         |

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|                                                                                                                                                                                                                                                                                                                                                                                                                              |    |                    |   |                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------|---|-------------------------|
| <b>CAR ID</b>                                                                                                                                                                                                                                                                                                                                                                                                                | 03 | <b>Section no.</b> | 5 | <b>Date:</b> 15/02/2021 |
| <b>Description of CAR</b>                                                                                                                                                                                                                                                                                                                                                                                                    |    |                    |   |                         |
| The Emission Reduction by Methane recovery from the landfill in the absence of the project activity during the third crediting period (BE <sub>CH4,SWDS,y</sub> ) are not consistent with that in the ER calculation spreadsheet. Also, emission Reduction from Electricity Generation during the third crediting period should be listed in the GS4GG PDD.                                                                  |    |                    |   |                         |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                                          |    |                    |   | <b>Date:</b> 30/03/2021 |
| The values of BE <sub>CH4,SWDS,y</sub> are corrected according to ER sheet in the updated PDD. ER from Electricity Generation are added in the updated PDD.                                                                                                                                                                                                                                                                  |    |                    |   |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                                         |    |                    |   |                         |
| Renewal GS4GG PDD_GS397_Suzhou LFG                                                                                                                                                                                                                                                                                                                                                                                           |    |                    |   |                         |
| <b>Validation conclusion</b>                                                                                                                                                                                                                                                                                                                                                                                                 |    |                    |   | <b>Date:</b> 06/04/2021 |
| In the GS4GG PDD ( <a href="#">Version 4.0 dated 06/07/2021</a> ), the BE <sub>CH4,SWDS,y</sub> in the 3 <sup>rd</sup> crediting period has been revised to be consistent with that in the ER calculation spreadsheet. The emission Reductions from Electricity Generation during the 3 <sup>rd</sup> crediting period have been listed which is confirmed by CTI Validation Team to be correct. Therefore, CAR03 is closed. |    |                    |   |                         |

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Table 3. FAR from this validation

|                                               |    |             |  |                  |
|-----------------------------------------------|----|-------------|--|------------------|
| FAR ID                                        | xx | Section no. |  | Date: DD/MM/YYYY |
| Description of FAR                            |    |             |  |                  |
|                                               |    |             |  |                  |
| Project participant response                  |    |             |  | Date: DD/MM/YYYY |
|                                               |    |             |  |                  |
| Documentation provided by project participant |    |             |  |                  |
|                                               |    |             |  |                  |
| Validation conclusion                         |    |             |  | Date: DD/MM/YYYY |
|                                               |    |             |  |                  |

## APPENDIX B: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Mr. Wenjun DU

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

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

| Scope                                                     | Technical Area                                          |
|-----------------------------------------------------------|---------------------------------------------------------|
| SS 1: Energy industries (renewable/non-renewable sources) | TA 1.2: Energy generation from renewable energy sources |
| SS 13: Waste handling and disposal                        | TA 13.1: Solid waste and wastewater                     |
|                                                           | TA 13.2: Manure                                         |

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

Approved by:

Wu LIN

*Wu Lin*

Technical Competent Manager

Shenzhen, 01/01/2021

Mr. Ziqi LI

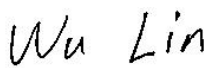
Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

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

| Scope                                                                                             | Technical Area                                          |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| SS 1: Energy industries (renewable/non-renewable sources)                                         | TA 1.2: Energy generation from renewable energy sources |
| SS 4: Manufacturing industries                                                                    | TA 4.1: Cement and lime production                      |
| SS 5: Chemical industry                                                                           | TA 5.1: Chemical industry                               |
|                                                                                                   | TA 5.2: Caprolactam, nitric and adipic acid             |
| SS 11: Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride | TA 11.1: Emissions of fluorinated gases                 |
|                                                                                                   | TA 11.2: Refrigerant gas production                     |
| SS 12: Solvents use                                                                               | TA 12.1: Chemical industry                              |
| SS 13: Waste handling and disposal                                                                | TA 13.1: Solid waste and wastewater                     |
|                                                                                                   | TA 13.2: Manure                                         |

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

Approved by:   
Wu LIN  
Technical Competent Manager  
Shenzhen, 01/08/2020