



Verified Carbon Standard

NANHAI MSW INCINERATION II PROJECT



Document Prepared By LGAI Technological Center, S.A. (Applus+ Certification)

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¹ The validation of the project has been finished on 16/03/2020 presented as validation report version 01.1, dated 16/03/2020 submitted to VERRA. The revision of the FVR is based on the review opinion from VERRA.

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Summary:

LGAI Technological Center, S.A. (hereafter referred to as “Applus+ Certification”) has been commissioned by Climate Bridge Ltd. to perform a gap validation of registered CDM project activity “Nanhai MSW Incineration II Project” (UNFCCC Ref. No. 5297, hereafter referred to as “the project activity”) reported in the Project Description.

The project activity has been validated by GLC based on the CDM PDD version 11 dated 06/01/2012 and reported in the validation report No. 008008, version 11, completed on 19/01/2012. The project activity was registered as a CDM project activity on 27/02/2012. And a renewal of crediting period has been performed by CCCI based on the CDM PDD version 13.0 dated 01/03/2019 and reported in the validation report, version 2.0, completed on 20/03/2019. All above information is available at <https://cdm.unfccc.int/Projects/DB/Germanischer1317298382.09/view>.

The project activity is an MSW incineration project located at Shougouling, Shishan Forestry Centre, Shishan Town, Nanhai District, Foshan City, Guangdong Province, People’s Republic of China which is to use MSW resource for electricity generation. The installed capacity of the project activity is 40 MW, consisting of 3 set of 500t/d mechanical grate incinerators matched with two sets of 15 MW steam turbine and two sets of 20 MW generators. The project will process 495,000 tons of MSW every year. The average annual power generated by the project is expected to be 168,655 MWh of which 134,924 MWh will be exported to the grid. The Project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants of South China Power Grid (SCPG). Meanwhile by combusting MSW that would otherwise be disposed of at landfill, the project activity avoids the emission of methane that would be generated under landfill condition. It’s estimated that the proposed project could achieve GHG emission reductions of 212,737 tCO₂e annually in this crediting period.

The purpose and scope of this validation is to ensure that reported information in the Project Description is complete and accurate in accordance with applicable VCS standards and relevant UNFCCC requirements. A desk review and a site visit have been conducted to verify the data submitted in the Project Description. Applus+ Certification confirms the following has been reviewed:

- Project Description, version 1.0, dated 27/02/2020; version 3.0, dated 20/05/2020;
- CDM PDD version 11 dated 06/01/2012;
- CDM PDD version 13.0 dated 01/03/2019;
- Validation report No. 008008, version 11, completed on 19/01/2012;

- Validation report version 2.0, completed on 20/03/2019;
- Approved methodology, AM0025, version 12.0, dated 13/08/2010;
- VCS standards and guidance version 4.0, as well as relevant UNFCCC requirements;
- All information and references relevant to the project activity's description.

During this validation, no finding was identified related to the implementation or operations of the project activity in relation to relevant VCS standards, guidance and UNFCCC requirements and relevant host party criteria and the applied baseline and monitoring methodology etc.

Applus+ Certification confirms that:

- The project's description compliance with, the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS guideline and standard version 4.0;
- The project's baseline and additionality is assessed against "AM0025 version 12.0 for CDM large scale project";
- The project's monitoring plan is assessed against "AM0025 version 12.0 for CDM large scale project";
- A risk-based approach has been followed to perform this validation activity. The review of the project description and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews with Project Owner have provided LGAI Technological Center S.A. (Applus+ Certification) with sufficient evidence for positive validation opinion as per the requirement of VCS.

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1 INTRODUCTION

1.1 Objective

LGAI Technological Center, S.A. has been commissioned by Climate Bridge Ltd. to perform a gap validation of registered CDM project activity “Nanhai MSW Incineration II Project” (UNFCCC Ref. No. 5297, hereafter referred to as “the project activity”) reported in the Project Description.

LGAI Technological Center, S.A. as the validation body of the project activity has been accredited as a DOE by UNFCCC and also meets the competence requirements as set out in ISO 14065:2007.

The objective of this validation is to ensure that reported information in the Project Description of “Nanhai MSW Incineration II Project” is complete and accurate in accordance with applicable VCS standards and relevant UNFCCC requirements.

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the project design document (PD). The PD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AM0025 version 12.0. The validation was based on the requirements in the CDM Validation and Verification standard for project activities version 02.0 and VCS guideline and standard version 4.0.

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.

1.3 Level of Assurance

The validation report is based on the CDM-PDD, VCS-PD, supporting evidences made available to the validator and information collected through performing interviews and during the on-site assessment.

The validation conclusion is assured a reasonable level of assurance.

1.4 Summary Description of the Project

Project title	Nanhai MSW Incineration II Project
UNFCCC reference number	5297
Project Participants	Foshan Nanhai Green Renewable Energy Co., Ltd. (Project Owner, host country, P. R. China) Climate Bridge Ltd. (VER Buyer, United Kingdom of Great Britain and Northern Ireland) Climate Bridge Ltd. (VER Buyer, Netherlands)
Location of the project	Shougouling, Shishan Forestry Centre, Shishan Town, Nanhai District, Foshan City, Guangdong Province, People's Republic of China Geographic coordinates: Longitude: 113.0328°E Latitude: 23.1575°N
Project start date	Construction date: 08/05/2009 Operation start date: 01/06/2011
Date of registration as CDM project	27/02/2012
Version of registered CDM PDD	Version 11, dated 06/01/2012
Applied Methodology/Version	AM0025, version 12.0, dated 13/08/2010
Scope/Technical Area	1/1.1 13/13.1

The project activity is an MSW incineration project located at Shougouling, Shishan Forestry Centre, Shishan Town, Nanhai District, Foshan City, Guangdong Province, People's Republic of China which is to use MSW resource for electricity generation. The installed capacity of the project activity is 40 MW, consisting of 3 set of 500t/d mechanical grate incinerators matched with two sets of 15 MW steam turbine and two sets of 20 MW generators. The project will process 495,000 tons of MSW every year. The average annual power generated by the project is expected to be 168,655 MWh of which 134,924 MWh will be exported to the grid. The Project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants of South China Power Grid (SCPG). Meanwhile by combusting MSW that would otherwise be disposed of at landfill, the project activity avoids the emission of methane that would be generated under landfill condition. It's estimated that the proposed project could achieve GHG emission reductions of 212,737 tCO₂e annually in this crediting period.

The project activity has been validated by GLC based on the CDM PDD version 11 dated 06/01/2012 and reported in the validation report No. 008008, version 11, completed on 19/01/2012. The project activity was registered as a CDM project activity on 27/02/2012. And a renewal of crediting period has been performed by CCCI based on the CDM PDD version 13.0 dated 01/03/2019 and reported in the validation report, version 2.0, completed on 20/03/2019. All above information is available at <https://cdm.unfccc.int/Projects/DB/Germanischer1317298382.09/view>.

2 VALIDATION PROCESS

2.1 Method and Criteria

Validation was conducted using Applus+ Certification's procedures in line with the requirements specified in the VCS Standard version 4, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant UNFCCC requirements and applying standard auditing techniques. No sampling was utilized during the site visit as well as validation for project activity.

Applus+ Certification completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of (if applicable):

- Project Details;
- Application of Methodology;
- Estimated GHG Emission Reduction and Removals;
- Monitoring;
- Safeguards etc.

Applus+ Certification validate that the reported information in the Project Description are complete and accurate in question. This involved a site visit and a desk review of the Project Design. This Validation Report describes the findings of this assessment.

The information of the assessment team is included in below of this report.

Assessment team

According to the sectoral scopes / technical area and experiences in the sectoral or national business environment, Applus+ Certification has composed a project assessment team in accordance with the appointment rules in Applus+ Certification. The composition of assessment team has to be approved by the Applus+ Certification ensuring that the required skills are covered by the team. The four qualification levels for team members that are assigned by formal appointment rules as below:

- Leader Auditor (LA)
- Auditor (A)/ Auditor Trainee (AT)
- Technical Reviewer (TR)
- Technical Experts (TE)

Name	Qualification	Coverage of scope	Coverage of Technical Area	Host country experience
<i>Denny Xue</i>	<i>LA/TE</i>	<i>Y (1.1 and 13.1)</i>	<i>Y</i>	<i>Y</i>
<i>Simon Shen</i>	<i>TR</i>	<i>Y (1.1 and 13.1)</i>	<i>Y</i>	<i>Y</i>

Denny Xue (Master's Degree in Environmental Engineering, Bachelor's Degree in Thermal Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment, auditing and technical review. He has more than 6 years of work experience in CDM/GS4GG/VCS project assessment and review with Applus+. Before he joined Applus+ LGAI, he has been working for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development.

Simon Shen (Master's Degree in Thermal Energy Engineering, Bachelor's Degree in Environmental Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment, auditing and technical review. He has more than 6 years of work experience in CDM/GS4GG/VCS project assessment and review with Applus+, apart from the years of experience working as GHG Auditor and ISO 9001/14001 in TUV SUD before he joined Applus+ for 3.5 years. Mr. Simon Shen has extensive experience also as former Applus+ Shanghai CDM Technical Manager.

2.2 Document Review

The VCS project design version 1.0 dated 27/02/2020, version 3.0 dated 20/05/2020 were assessed as part of the validation. In addition, the registered CDM PDD version 11 dated 06/01/2012 and the registered CDM validation report version 11 dated 19/01/2012, as well as relevant documents, were reviewed. A detailed documents reviewed are listed in Appendix 1 of the report.

2.3 Interviews

The key personnel interviewed are summarized in the table below:

Interviewed personnel	Role	Organization	Subject
Mr. Luo Guoheng	Engineer	Foshan Nanhai Green Renewable Energy Co., Ltd.	Operation of the project activity; Implementation of the monitor plan of the project activity; Data collection and data achievement; Calibration of meters and equipment maintenance.
Mr. Wang Zhonghai	Manager	Foshan Nanhai Green Renewable Energy Co., Ltd.	
Mr. Tan Yonghua	Engineer	Foshan Nanhai Green Renewable Energy Co., Ltd.	
Ms. Chen Genrong	Project Manager	Climate Bridge (Shanghai) Ltd.	Data collection and ER calculation.

2.4 Site Inspections

The assessment team performed the on-site validation (Shougouling, Shishan Forestry Centre, Shishan Town, Nanhai District, Foshan City, Guangdong Province, People's Republic of China) on 06/03/2020. The interviewed personnel and objective are listed in above table.

2.5 Resolution of Findings

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

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

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

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

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

There is no CARs and CLs raised for this monitoring period for the project.

2.5.1 Forward Action Requests

None FAR was raised during the validation process. Also, there are no remaining from former verification and validation.

3 VALIDATION FINDINGS

3.1 Project Details

The following description of the project as per PD was verified during the on-site visit:

The project activity is an MSW incineration project located at Shougouling, Shishan Forestry Centre, Shishan Town, Nanhai District, Foshan City, Guangdong Province, People's Republic of China which is to use MSW resource for electricity generation. The installed capacity of the project activity is 40 MW, consisting of 3 set of 500t/d mechanical grate incinerators matched with two sets of 15 MW steam turbine and two sets of 20 MW generators. The project will process 495,000 tons of MSW every year. The average annual power generated by the project is expected to be 168,655 MWh of which 134,924 MWh will be exported to the grid. The Project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants of South China Power Grid (SCPG). Meanwhile by combusting MSW that would otherwise be disposed of at landfill, the project activity avoids the emission of methane that would be generated under landfill condition. It's estimated that the proposed project could achieve GHG emission reductions of 212,737 tCO₂e annually in this crediting period. Due to the different length of crediting period, different start date of crediting period and different GWP for CH₄ and N₂O under CDM and VCS scheme, the emission reduction has been re-calculated which is different with the figure in the CDM PDD based on the character of calculation for MSW incineration project. By checking the ER spreadsheet, it is able to confirm the calculation of ER meet the requirement of methodology.

The project activity was invested and operated by Foshan Nanhai Green Renewable Energy Co., Ltd. which is the project proponent of project by checking the business license of the project.

By checking the registered CDM PDD and site visit interview with project owner, it is confirmed that the project started operation on 01/06/2011 which is the project start date according to the requirement of VCS. Therefore, the start date of the crediting period of the project would be started from 01/06/2011 to 31/05/2021 last for 10 years in line with the requirement of VCS standard version 3.7 meet the requirement of VCS Version 4: Overview of substantive updates to program rules & requirements².

As the installed capacity of the project is 40 MW which falls under large scale project according to the requirement of CDM. However, due the annually estimated emission reductions are lower than 300,000 tCO₂, the project falls under project under VCS standard.

The project is located at Shougouling, Shishan Forestry Centre, Shishan Town, Nanhai District, Foshan City, Guangdong Province, People's Republic of China. The geographical coordinators of project are 113.0328° E longitude and 23.1575° N latitude verified by the site visit.

Before the implementation of the project activity, the electricity generated by the project would be supplied by SCPG in the baseline scenario and the MSW combusted would be disposed in the landfill generating landfill gas without utilization.

By checking laws and regulation, it is confirmed that the project activity is in complicate with all laws and regulations in China.

By checking information on the Internet, it is confirmed that the project activity has been validated by GLC based on the CDM PDD version 11 dated 06/01/2012 and reported in the validation report No. 008008, version 11, completed on 19/01/2012. The project activity was registered as a CDM project activity on 27/02/2012. And a renewal of crediting period has been performed by CCCI based on the CDM PDD version 13.0 dated 01/03/2019 and reported in the validation report, version 2.0, completed on 20/03/2019. All above information is available at <https://cdm.unfccc.int/Projects/DB/Germanischer1317298382.09/view>.

The project does not participate in the other emissions trading program other than CDM by checking public information on Internet and interviewing with project owner. During the period from 27/02/2012 to 28/02/2015, the project has applied for the issuance of CERs. Of course, no rejection from other GHG programs. By checking statement issued by the project owner, during the crediting period from 01/06/2011 to 31/05/2021, the project would either apply for VCUs or CERs. But both credits will not be claimed in the same period.

As the project is not a grouped project, the eligibility criteria for grouped project is not applicable; No leakage management as not an AFOLU project; No commercially sensitive information confirmed through site visit.

The project activity would contribute sustainable development in the region in following aspects confirmed by site visit:

- Reduce GHG emission compared to common practice.
- Relieve the pressure of power demand, and improve the innovation in urban resource integrated utilization sector.
- Provide a solution to local MSW sanitary treatment.
- Reduce pollutant release in power sector, compared to common practice.
- Create job opportunities for local government during the construction and operation of the project.

² Registered projects and projects that complete validation on or before 19/03/2020 remain eligible to apply the crediting period requirements under VCS Version 3.

Overall, it is confirmed that the PD is accurate, complete, and provides an understanding of the nature of the project.

3.2 Safeguards

3.2.1 No Net Harm

According to the requirement of VCS standard version 4.0, for projects registered under the CDM, the cover page and sections 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.12, 1.13, 1.14, 1.15.1, 1.16, 1.17 and 2.6³ of the VCS Project Description Template shall be completed. A validation/verification body shall undertake a validation of same, which shall be accompanied by a validation representation, to provide a gap validation for the project's compliance with the VCS Program rules.

Therefore, this part is not applicable. The project would use the same methodology and tools indicated in the registered CDM PDD. The same for below part when applicable.

3.2.2 Local Stakeholder Consultation

Not applicable.

3.2.3 Environmental Impact

Not applicable.

3.2.4 Public Comments

This project was open for public comment from 28/02/2020 to 29/03/2020. There are no public comments received for the project during the comment period.

3.2.5 AFOLU-Specific Safeguards

Not applicable.

3.3 Application of Methodology

³ There is no Section 2.6 of Project Description version 4.0. By checking VCS standard version 3.7 and the template for the Project Description, it is understood that refers to the Section 3.6 of actual Project Description version 4.0.

3.3.1 Title and Reference

Not applicable.

3.3.2 Applicability

Not applicable.

3.3.3 Project Boundary

Not applicable.

3.3.4 Baseline Scenario

Not applicable.

3.3.5 Additionality

Not applicable.

3.3.6 Quantification of GHG Emission Reductions and Removals

Not applicable.

3.3.7 Methodology Deviations

No methodology deviation was requested.

3.3.8 Monitoring Plan

Not applicable.

3.4 Non-Permanence Risk Analysis

Not applicable.

4 VALIDATION CONCLUSION

Applus+ Certification has been engaged by Climate Bridge Ltd. to perform a gap validation of registered CDM project activity “Nanhai MSW Incineration II Project”

Our Validation approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board and VCS board. Our approach is risk-based, drawing on an understanding of the risks associated with estimated GHG emissions data and the controls in place to mitigate these. The validation can confirm that:

- The projects description compliance with, the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS guideline and standard version 4.0;
- The project's baseline and additionality is assessed against “AM0025 version 12.0 for CDM large scale project”;
- The project’s monitoring plan is assessed against “AM0025 version 12.0 for CDM large scale project”
- A risk-based approach has been followed to perform this validation activity. The review of the project description and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews with Project Owner have provided LGAI Technological Center S.A. (Applus+ Certification) with sufficient evidence for positive validation opinion as per the requirement of VCS.

APPENDIX 1: REFERENCE LIST

1. Project Description, version 1.0, dated 27/02/2020; version 2.0, dated 20/05/2020
2. Registered CDM PDD, version 11, dated 06/01/2012; version 13.0, dated 01/03/2019
3. Validation report, No. 008008, version 11, completed by GLC
4. Validation report version 2.0, completed by CCCI
5. VCS standard version 3.7, dated 21/06/2017; version 4.0, dated 19/09/2019
6. Approved methodology AM0025, version 12.0, dated 13/08/2010
7. Nameplate of the equipment
8. Business License
9. Statement issued by project owner
10. ER spreadsheet