Verification and certification report form for GS project activities

(Version 02.0)

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION	
Title and GS reference number of the project activity	Buenos Aires Renewable Energy Project Ref.: GS2290
Version number of the verification and certification report	1.0
Completion date of the verification and certification report	13/11/2017
Monitoring period number and duration of this monitoring period	Monitoring Period No: 2 (*1st MP as a GS project activity*) 01/03/2012 – 31/08/2017 (including both days)
Version number of monitoring report to which this report applies	03 (dated 13/11/2017)
Crediting period of the project activity corresponding to this monitoring period	Fixed – 10 years 01/03/2012 – 31/12/2019 (including both days) – *the total 10 years period includes the crediting period under VCS*
Project participants	- Sustainable Carbon - Projetos Ambientais Ltda - Patrícia Mattos de Cunha – EPP (Buenos Aires Ceramic)
Host Party	Brazil
Applied methodologies and standardized baselines	Methodology: AMS-I.E – version 5.0 – Switch from Non-Renewable Biomass for Thermal Applications by the User
Mandatory sectoral scopes linked to the applied methodologies	Sectoral Scope: 1
Conditional sectoral scope(s) linked to the applied methodologies	-
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	143,984 tCO_2e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	142,268 tCO_2e
Name of DOE	Earthood Services Private Limited

Name, position and signature of the approver of the verification and certification report	 Dr. Kaviraj Singh Managing Director

SECTION A. Executive summary

Brief summary of the project activity

The project activity consists in one red ceramic factory located in the municipality of Buenos Aires, State of Pernambuco, Brazil.

The project activity reduces GHG emissions by the substitution of non-renewable biomass for renewable biomasses to generate thermal energy. As renewable biomasses, the project uses algarroba wood, wood residues, eucalyptus and native wood with sustainable management plan, which are used to feed the ceramic kilns.

Scope of verification

This verification is an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE. The verification addresses the implementation and operation of the GS PA and tests the data and assertions set out in the monitoring report based on the following:

i. the registered VCS-PD, GS Gap Analysis and Passport;

ii. the approved methodology mention in the VCS-PD, GS Gap Analysis and Passport;

iii. the registered monitoring plan;

iv. UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accords;

v. Gold Standard (GS) Toolkit 2.2;

vi. CDM Validation and Verification Standard (VVS);

vii. CDM Project Standard (PS) and Project Cycle Procedure (PCP);

viii. relevant decisions, guidance and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the project activity's reported emission reductions.

The verification has considered both quantitative and qualitative aspects on stated/reported emission reductions. The monitoring report (all versions) and corresponding supporting documentation was assessed in accordance with the rules defined by UNFCCC and GS, as appropriate to the PA. The verification is not meant to provide any consulting or recommendations to the CME/others. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

Verification process

The verification process is conducted as per internal CDM Quality Manual, which includes the following steps:

a. contract with PP and appointment of verification team and technical review team (refer Section B.1 and B.2 of this report);

b. completeness check of Monitoring Report;

c. sending the Monitoring Report to GS to become public available;

d. desk review (refer Section C.1 of this report) of Monitoring Report and corresponding ER sheet by verification team and planning of onsite audit (including sampling approach (refer Section C.4 of this report) to be applied);

e. on site audit (refer Section C.2 of this report) (physical implementation and interview with relevant stakeholders) by verification team;

f. follow up activities e.g., interviews;

g. reporting and closure of findings (CARs/CLs/FARs) and preparation of draft verification report (refer Section C.5 of this report);

h. independent technical review (refer Section D of this report) of the draft verification report and final/revised documentation (e.g., Monitoring Report, corresponding ER sheet and evidences);

i. reporting and closure of TR comments/findings (refer Section C.5 of this report) (CARs/CLs/FARs) and final approval for the decision made (refer Section E and F of this report);

j. issuance of final verification report to contracted PP (or authorized representatives) and submission of request for issuance, as appropriate.

Conclusion

Based on the outcome of the verification process of the registered PA "Buenos Aires Renewable Energy Project" for the monitoring period from 01/03/2012 to 31/08/2017, we confirm that the implementation of referenced registered PA is complying with applicable GS and CDM rules and regulations as stated in the Monitoring Report (final) – version 03, dated 13/11/2017.

Earthood Services Private Limited is able to certify that the emission reductions from the registered GS PA "Buenos Aires Renewable Energy Project", in Brazil, during the period from 01/03/2012 to 31/08/2017 (including both days), correspond to the amount of 142,268 tCO_2e. Therefore, this is being submitted for request for issuance, as per GS and UNFCCC procedures as applicable.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	EI	Cruz	Sergio	Central Office	Y	Y	Y	Y
2.	Local Expert	EI	Cruz	Sergio	Central Office	Y	Y	Y	Y
3.	Methodological Expert	EI	Cruz	Sergio	Central Office	Y	Y	Y	Y
4.	Technical Expert	EI	Cruz	Sergio	Central Office	Y	Y	Y	Y

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical Reviewer	EI	Sebben	Marcelo	Central Office
2.	Technical Expert	EI	Sebben	Marcelo	Central Office
3.	Approver	IR	Singh	Kaviraj	Central Office

SECTION C. Application of materiality

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	*Internal control sheet monitored by employees*	*Medium*	*Manual counting of produced devices*	*The production is crosschecked with records of consumed biomass.*
2.	*Error in transferring the data to ER sheet*	*Medium*	*Transfer of data from source to ER calculation involve human intervention and might lead to inconsistencies.*	*The values reported in ER sheet to be crosschecked with their respective source data. The first value, last value and the total of the columns for all parameters reported at the interval of were verified from the source data.*

3.	*Calculation of some parameters*	*Low*	*Human errors entering formulas and data.*	*All formulas are checked and compared to applied methodology and tools. In addition, entry data are crosschecked with raw data.*

C.2. Consideration of materiality in conducting the verification

In accordance with CDM VVS for Project Activities – version 01.0 – para 329, the prescribed thresholds for materiality for CDM PAs are as under:

Emission Reductions (tCO_2e)/year	**500,000 or more**	**300,001 to 499,999**	**300,000 or less**	**Small Scale CDM PAs**	**Micro Scale CDM PAs**
Materiality Threshold	**0.5%**	**1.0%**	**2.0%**	**5.0%**	**10.0%**

The materiality threshold is 5.0%.

Particulars / Monitoring Report	**MR Version (Public)**	**MR Version (Revised/Final)**
Emission Reductions Achieved (tCO_2e) in this monitoring period	N/A	N/A
Applicable Threshold (%)	N/A	N/A

The verification team has identified the impact of errors observed and those were corrected by PP during verification for all monitoring parameter at individual level. The extrapolated impact on ERs is also provided for parameters individually and in aggregated manner in the end.

Monitored Parameter (Symbol / Description)	**Reporting Frequency**	**Number of Discrete Data (Total)** **Total (100%)**	**Sample selected for verification** **Sample (100%)**	**Type of error identified**	**Impact on ERs**	
					ERs impacted (Sample)	**ERs impacted (Population based on extrapolation)**
PR_y	Monthly aggregation of daily basis by operating oven	100% of monthly aggregation of daily basis by oven	100% of monthly aggregation / 33% of total months of full daily data	Typo errors in the numbers and absence of evidences	Errors in total amount	Errors in total amount
$Q_{renbiomass}$	Monthly aggregation whenever the biomass is purchased	100% of monthly aggregation whenever the biomass is purchased	100% of monthly aggregation / 50% of total months of full purchase data	Typo errors in the numbers and absence of evidences	Errors in total amount	Errors in total amount
$f_{NRB,y}$	Each monitoring period	100%	100%	No error identified	No impact	No impact
Origin of Renewable Biomass	Each monitoring period	100%	100%	No error identified	No impact	No impact
Leakage due to competing uses of biomass	Annually	100%	100%	No error identified	No impact	No impact
Leakage of non-renewable	According to the applied methodology	100%	100%	No error identified	No impact	No impact

woody biomass						

Based on the above table it can be confirmed that the materiality threshold is not breached applicable for the registered PA as per CDM VVS.

SECTION D. Means of verification

D.1. Desk/document review

The verification is performed primarily as a desk review of the documents submitted at various stages of assessments. The review is performed by assessment team using dedicated protocols (checklists). The assessment team cross checks the information provided in the documents (MR) and information from sources other than those used, if available, and conducts independent background investigations.

ESPL conducted a desk review, as under:

a. a review of the data and information presented to verify their completeness

b. a review of the monitoring plan (as described in VCS-PD, GS Gap Analysis and Passport), the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures

c. a review of calculations and assumptions made in determining the GHG data and emission reductions;

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

A complete list of documents/evidences reviewed is included as Appendix 3.

D.2. On-site inspection

Duration of on-site inspection: 27/09/2017				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Opening meeting at the Ceramic	Buenos Aires	27/09/2017	Sergio Cruz
2.	Implementation and operation of project activity	Buenos Aires	27/09/2017	Sergio Cruz
3.	Physical inspection of the project activity	Buenos Aires	27/09/2017	Sergio Cruz
4.	Management and operational system	Buenos Aires	27/09/2017	Sergio Cruz
5.	Review of ER calculations in accordance with applied methodology and relevant tools Review of monitored data and relevant document	Buenos Aires	27/09/2017	Sergio Cruz
6.	Interview with the local stakeholder	Buenos Aires	27/09/2017	Sergio Cruz
7.	Presentation of findings	Buenos Aires	27/09/2017	Sergio Cruz
8.	Closing meeting	Buenos Aires	27/09/2017	Sergio Cruz

D.3. Interviews

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Felipe	Elleny	Buenos Aires Ceramic	27/09/2017	Monitoring of production, biomass and SD Indicators	Sergio Cruz
2.	Prado	Guilherme	Sustainable Carbon	27/09/2017	Monitoring of project activity and Review of monitored data ER calculations	Sergio Cruz

3.	Cunha	Rodolfo	Buenos Aires Ceramic	27/09/2017	Management of the project activity; management of ceramic and market conditions	Sergio Cruz
4.	Queiroz	Danilo	Danilo Queiroz	27/09/2017	Biomass supplier (algaroba)	Sergio Cruz
5.	Silva	Severino	Buenos Aires Ceramic	27/09/2017	Employees' working conditions	Sergio Cruz
6.	Rissone	Cubano	Processos e Sistemas	27/09/2017	Operation of ceramic	Sergio Cruz

D.4. Sampling approach

A sampling approach was used to verify parameters PR_y and $Q_{renbiomass}$.

For parameter PR_y, there are values on a daily basis by oven. There are three ovens in the project activity and 66 months within the monitoring period. The chosen sample was ⅓ of the total months (i.e. 22 months) of full daily data and 100% of the monthly aggregation.

For parameter $Q_{renbiomass}$, there are values on a purchase basis by ceramic. The purchase does not occur on a daily basis and just for the necessary biomass. The chosen sample was the full verification of ½ of the total months (i.e. 33 months) of full daily data and 100% of the monthly aggregation.

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

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	-	-	-
Compliance of the project implementation with the registered PDD	1	-	1 *(from validation)*
Post-registration changes	-	-	-
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	1	3	1 *(from validation)*
Compliance of monitoring activities with the registered monitoring plan	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	1	-	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (please specify)	-	-	-
Total	3	3	2

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	The MR was crosschecked with the CDM-MR-FORM template available at the UNFCCC website and with the instructions for filling it out.
Findings	-
Conclusion	A valid version of the verification template (CDM-MR-FORM – version 06.0) available at the UNFCCC website has been used. It has been filled out in accordance with the "Instructions for filling out the monitoring report form".

E.2. Remaining forward action requests from validation and/or previous verifications

There are two FARs raised during ***GS 6-week registration review period***:

Forward Action Request No.1: In case the ceramic factory uses another type of renewable biomass, a new assessment shall be developed in the future. DOE shall validate the results from new generated reports.

Forward Action Request No.2: DOE shall interview a biomass supplies at verification stage in order to corroborate that biomass supply represent a new source of income.

Both FARs have been properly addressed during the present monitoring period. Refer to them below at Appendix 4 of this Verification Report.

E.3. Compliance of the project implementation and operation with the registered project design document

Means of verification	During the on-site visit, the verification team checked the implementation status of the project activity as well as the monitoring equipment. In addition, interviews with personnel and PP's representatives were also performed. The project activity consists in one red ceramic factory located in the municipality of Buenos Aires, State of Pernambuco, Brazil. This project activity reduces the greenhouse gases emissions by the substitution of non-renewable biomass for renewable biomasses to generate thermal energy. As renewable biomasses, the project uses algarroba wood, wood residues, eucalyptus and native wood with sustainable management plan, which are used to feed the three Hoffmann kilns of the ceramic. The geographical coordinates of the ceramic are: 7º 41' 46'' S and 35º 19' 01'' W.
Findings	CL 03
Conclusion	According to information verified during the site visit, the verification team has to confirm that all physical features (technology, project equipment, monitoring equipment and biomasses) of the registered GS project activity were in place and that the project participants have operated the project activity as per the approved VCS-PD during the concerned monitoring period. There are no actual or proposed deviations or changes in the implementation of the registered project activity.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines

Not applicable as no temporary deviations from the registered monitoring plan or from monitoring methodology have been submitted prior and/or during the current monitoring period.

E.4.2. Corrections

No corrections have been identified prior and/or during the present monitoring period.

E.4.3. Changes to the start date of the crediting period of the project activity

Not applicable as there was no change in the start date of the crediting period.

E.4.4. Inclusion of a monitoring plan

Not applicable as monitoring plan is part of the registered PD.

E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other applied standards or tools

As per the registered GS Passport, the monitoring of Indicator 1 – Air Quality – of the Sustainability Monitoring Plan was supposed to be done by Ringelmann smoke charts.
Nevertheless, the Air Quality is being monitored by a more complex and efficient method for the monitoring of atmospheric emissions, with specific equipment (gas measurement equipment) for this task and with the issuance of an atmospheric emissions report. This monitoring is a more trustable and traceable method and it is a requirement of the local environmental agency (CPRH) to issue the operation license of the ceramic.
In addition, as the change has no material impact on the applicability of the applied methodology or the accuracy and completeness of the monitoring, it does not require prior approval.

E.4.6. Changes to the project design

Not applicable as no changes to the project design of the registered project activity took place prior and/or during the current monitoring period.

E.4.7. Changes specific to afforestation and reforestation project activities

Not applicable as it is not an afforestation or reforestation PA.

E.5. Compliance of the registered monitoring plan with the methodology including applicable tool and standardized baselines

Means of verification	The MP of the approved VCS-PD was reviewed against the monitoring requirements of the applied methodology and applicable tools.
Findings	-
Conclusion	The MP of the project activity is totally in accordance with the applied methodology (AMS-I.E – version 5.0 – Switch from Non-Renewable Biomass for Thermal Applications by the User).

E.6. Compliance of monitoring activities with the registered monitoring plan

E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	All ex-ante parameters listed in MR used to calculate baseline, project, and leakage GHG emissions of the PA were checked against the registered VCS-PD. The ex-ante parameters of the registered VCS-PD were verified in order to check its consistency with CDM tools and guidance to calculate the ex-ante value and methodological requirements for the baseline, project and leakage emission calculations. The fixed parameters and their values are: - $EF_{projected\_fossilfuel}$: 81.6 tCO_2/TJ (as per Section 3 of the Gap Analysis Report); - $NCV_{biomass}$: 0.015 TJ/ton (as per Section 3 of the Gap Analysis Report); - $\rho_{biomass}$: 0.8072 ton/m³ (as per Section 3 of the Gap Analysis Report); - BF_y: 0.7904 ton of wood per thousand of ceramic pieces (a as per Section 3 of the Gap Analysis Report).
Findings	-
Conclusion	The values in the MR and corresponding emission reduction calculations spreadsheet are consistent with the registered Gap Analysis Report. The applied values are correct.

E.6.2. Data and parameters monitored (Carbon Verification)

Means of verification	All monitored parameters listed in MR used to calculate baseline, project, and leakage GHG emissions of the PA were checked against the registered VCS-PD. The parameters of the registered VCS-PD were verified in order to check its consistency with CDM tools and guidance to ER calculations. The monitored parameters and their values are:

1. ***PR_y:*** Amount of products produced in year *y*

Criteria/Requirements	Assessment Observation
Measuring / Reading / Recording frequency	Manual control of devices burnt in the kiln. Measurements are done by an internal control sheet monitored by employees on daily basis by operating oven. The production by year (in thousands of pieces) is: - 2012 (from Mar 1st): 31,480; - 2013: 28,778; - 2014: 26,004; - 2015: 30,718;

		- 2016: 26,523; - 2017 (until Aug 31st): 14,770.
	Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
	Monitoring equipment	N/A
	Is the accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	N/A
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A
	Calibration frequency / interval	N/A
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	N/A
	Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
	Is(are) the calibration(s) valid for the entire reporting period?	N/A
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
	How were the values in the monitoring report verified?	The values of the MR were verified their consistency with internal control sheet
	If applicable, has the reported data been crosschecked with other available data?	The values are crosschecked with records of the amount of consumed biomass
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix of the CDM Project Standard for PA – version 01.0?	N/A

2. $Q_{renbiomass}$: Amount of renewable biomass used during year *y* of the crediting period

Criteria/Requirements	Assessment Observation
Measuring / Reading / Recording frequency	Purchase invoice, delivery notes or other documents concerning the acquisition of renewable biomasses, whenever biomass is delivered. The amount of used renewable biomass by year (in tons) is:

	Wood from forest mgt	Algaroba	Wood residues	Eucalyptus
2012	1,122.82	2,736.00	0.00	0.00
2013	258.56	11,723.00	0.00	0.00
2014	0.00	10,891.75	143.50	0.00
2015	427.82	10,820.50	80.00	720.00
2016	0.00	3,771.50	1,659.88	720.00
2017	32.29	6,789.65	0.00	0.00

Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
Monitoring equipment	N/A
Is the accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	N/A
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A
Calibration frequency / interval	N/A
Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	N/A
Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
Is(are) the calibration(s) valid for the entire reporting period?	N/A
Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A

How were the values in the monitoring report verified?	The values of the MR were verified their consistency with invoices and delivery notes
If applicable, has the reported data been crosschecked with other available data?	The values are crosschecked with production output
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix of the CDM Project Standard for PA – version 01.0?	N/A

3. $f_{NRB,y}$: Fraction of woody biomass used in the absence of the project activity in year *y* that can be established as non-renewable using survey methods	
Criteria/Requirements	**Assessment Observation**
Measuring / Reading / Recording frequency	National and international articles, databases and data monitored by the project developer such as project activities about the availability of woody biomass in the Caatinga biome, done for each monitoring period. The calculated value is 92.93%.
Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
Monitoring equipment	N/A
Is the accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	N/A
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A
Calibration frequency / interval	N/A
Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the	N/A

local/national standards, or as per the manufacturer's specifications?	
Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
Is(are) the calibration(s) valid for the entire reporting period?	N/A
Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
How were the values in the monitoring report verified?	The values of the MR were verified their consistency calculations done according to data about the availability of woody biomass in the Caatinga biome
If applicable, has the reported data been crosschecked with other available data?	Technical literature
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix of the CDM Project Standard for PA – version 01.0?	N/A

4. ***Origin of Renewable Biomass***: Renewable origin of the biomass	
Criteria/Requirements	**Assessment Observation**
Measuring / Reading / Recording frequency	Purchase invoice, delivery notes or other documents concerning the acquisition of renewable biomasses, whenever biomass is delivered
Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
Monitoring equipment	N/A
Is the accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	N/A
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A

Calibration frequency / interval	N/A
Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	N/A
Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
Is(are) the calibration(s) valid for the entire reporting period?	N/A
Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
How were the values in the monitoring report verified?	N/A
If applicable, has the reported data been crosschecked with other available data?	Interviews with biomass suppliers
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix of the CDM Project Standard for PA – version 01.0?	N/A

5. ***Leakage due to competing uses of biomass***	
Criteria/Requirements	**Assessment Observation**
Measuring / Reading / Recording frequency	Annually calculated based on the surplus of each biomass. The leakage for each year of the monitoring period is 0 (zero).
Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
Monitoring equipment	N/A
Is the accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with	N/A

local/national standards, or as per the manufacturer's specification?	
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A
Calibration frequency / interval	N/A
Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	N/A
Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
Is(are) the calibration(s) valid for the entire reporting period?	N/A
Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
How were the values in the monitoring report verified?	The values of the MR were verified against surplus calculations according to PP's methodology developed for other similar projects
If applicable, has the reported data been crosschecked with other available data?	N/A
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix of the CDM Project Standard for PA – version 01.0?	N/A

6. ***Leakage of non-renewable woody biomass***	
Criteria/Requirements	**Assessment Observation**
Measuring / Reading / Recording frequency	Annually monitored according to applied methodology. The value for all years of the monitoring period is 0 (zero).
Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
Monitoring equipment	N/A

	Is the accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	N/A
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	N/A
	Calibration frequency / interval	N/A
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	N/A
	Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
	Is(are) the calibration(s) valid for the entire reporting period?	N/A
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
	How were the values in the monitoring report verified?	The value of the MR was verified against fuel consumption of the ceramic
	If applicable, has the reported data been crosschecked with other available data?	N/A
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix of the CDM Project Standard for PA – version 01.0?	N/A
Findings	FAR 01, CL 04, CAR 06, CAR 07	
Conclusion	The registered monitoring plan has been properly implemented and followed by the project participants. In addition, the parameters have been monitored in a correct and conservative way. Quality assurance and quality control procedures are in place. Therefore, the VT has concluded that the monitoring of the project activity is in accordance with the registered monitoring plan.	

E.6.3. Data and parameters monitored (Sustainability Verification)

Means of verification

All monitored parameters listed in MR used to calculate baseline, project, and leakage GHG emissions of the PA were checked against the registered VCS-PD. The parameters of the registered VCS-PD were verified in order to check its consistency with CDM tools and guidance to ER calculations.

The monitored parameters and their values are:

1. ***Air quality*** – Emissions to the atmosphere

Criteria/Requirements	Assessment Observation
Measuring / Reading / Recording frequency	Biannually monitoring using gas measurement equipment and issuance of an atmospheric emissions report
Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
How were the values in the monitoring report verified?	The monitoring reports were checked against the atmospheric emissions reports and monitoring reports
If applicable, has the reported data been cross-checked with other available data?	Environmental requirements and operation license
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate

2. ***Soil condition –*** Procedures related to the control and disposal of ashes

Criteria/Requirements	Assessment Observation
Measuring / Reading / Recording frequency	Whenever the ashes are collected and used as fertilizer for an eucalyptus plantation
Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
How were the values in the monitoring report verified?	The report of control was checked and during the site visit, the procedures were identified
If applicable, has the reported data been cross-checked with other available data?	N/A
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate

3. ***Quality of employment*** – Health and safety practices

Criteria/Requirements	Assessment Observation
Measuring / Reading / Recording frequency	Monthly monitoring control of distribution and use of IPEs. In addition, the ceramic has PPRA and PCMSO to assess better working conditions to the employees.

	Moreover, the operational equipment presents security items, which provide a safer operation
Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
How were the values in the monitoring report verified?	Record of distribution of IPEs, PPRA, PCMSO, site visit and interviews
If applicable, has the reported data been cross-checked with other available data?	N/A
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate

4. ***Quantitative employment and income generation*** – Voluntary Emission Reductions issued	
Criteria/Requirements	**Assessment Observation**
Measuring / Reading / Recording frequency	Yearly
Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
How were the values in the monitoring report verified?	By previous VERs issuance (VCS) and internal control of received income. During the site visit, some improvement in the ceramic features due to the VERs income have been verified.
If applicable, has the reported data been cross-checked with other available data?	N/A
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate

5. ***Quantitative employment and income generation*** – Additional revenues for biomass suppliers	
Criteria/Requirements	**Assessment Observation**
Measuring / Reading / Recording frequency	Once every monitoring period
Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
How were the values in the monitoring report verified?	During the site visit, a biomass supplier was interviewed in order to assess the indicator

If applicable, has the reported data been cross-checked with other available data?	N/A
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate

6. ***Biodiversity*** – Origin of renewable biomass	
Criteria/Requirements	**Assessment Observation**
Measuring / Reading / Recording frequency	Yearly
Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
How were the values in the monitoring report verified?	Purchase invoice, delivery notes or other documents concerning the acquisition of renewable biomasses
If applicable, has the reported data been cross-checked with other available data?	Interviews with biomass supplier
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate

7. ***Biodiversity*** – Biomass surplus	
Criteria/Requirements	**Assessment Observation**
Measuring / Reading / Recording frequency	Annually calculated based on the surplus of each biomass. The leakage for each year of the monitoring period is 0 (zero).
Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
How were the values in the monitoring report verified?	The values of the MR were verified against surplus calculations according to PP's methodology developed for other similar projects
If applicable, has the reported data been cross-checked with other available data?	N/A
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate

8. ***Access to affordable and clean energy services*** – Total energy produced from renewable sources

	Criteria/Requirements	Assessment Observation
	Measuring / Reading / Recording frequency	Monthly and consolidated yearly calculating the total thermal energy produced with purchased biomasses
	Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes
	How were the values in the monitoring report verified?	The values of the MR were verified against calculations total thermal energy produced with purchased biomasses
	If applicable, has the reported data been cross-checked with other available data?	N/A
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management system was found to be reliable and appropriate
Findings	FAR 02, CAR 08	
Conclusion	The registered monitoring plan has been properly implemented and followed by the project participants. In addition, the parameters have been monitored in a correct and conservative way. Quality assurance and quality control procedures are in place. Therefore, the VT has concluded that the monitoring of the project activity is in accordance with the registered monitoring plan.	

E.6.4. Implementation of sampling plan

Means of verification	Documents were checked and interviews with PP's representatives and personnel were performed in order check if a sampling plan was used.
Findings	-
Conclusion	Not applicable as no sampling plan was used.

E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	There are no instruments that require calibration within the operation and monitoring of the ceramic.
Findings	-
Conclusion	Not applicable

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	The calculations of baseline emission have been done in accordance with registered monitoring plan and applied methodology. As $BE_y = ER_y$, the equation used is as follows: $$ER_y = B_y \, X \, f_{NRB,y} \; X \, NCV_{biomass} \, X \, EF_{projected\_fossilfuel}$$ Where: - ER_y: emissions reductions in year y; - B_y: quantity of woody biomass that was substituted or displaced; - $f_{NRB,y}$: fraction of woody biomass used in the absence of the project activity in year y that was established as non-renewable biomass using survey methods; - $NCV_{biomass}$: Net calorific value of non-renewable biomass that was substituted; - $EF_{projected\_fossilfuel}$: emission factor for substitution of non-renewable woody biomass by similar consumers.

	$BE_y = ER_y = 142{,}268\ tCO_2e$
Findings	CAR 06, CAR 07
Conclusion	The verification team confirms that: a. the monitored data was available in accordance with the registered monitoring plan; b. the reported data were crosschecked, as prescribed in the revised approved VCS-PD, with the relevant supporting and were found consistent; c. appropriate methods and formulae for calculating baseline GHG emissions have been followed; d. the assumptions, emission factors and default values that were applied in the calculations are correct and evidenced; e. the calculations are transparent, consistent, correct and complete.

E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of verification	Project emission estimation has been done in accordance with registered monitoring plan, applied methodology and tool. As the applied methodology does not include any source of project emission, $PE_y = 0\ tCO_2e$
Findings	-
Conclusion	The verification team confirms that the project emissions are in accordance with the applied methodology.

E.8.3. Calculation of leakage GHG emissions

Means of verification	No leakage emissions were to be considered, which is found to be appropriate after onsite visit, document review and review of calculations. There are no leakages of GHG, which is in line to registered monitoring plan and applied methodology. No potential new sources of leakage were identified. $LE_y = 0\ tCO_2e$
Findings	-
Conclusion	The verification team confirms that: a. the monitored data was available in accordance with the registered monitoring plan; b. the reported data were crosschecked, as prescribed in the revised approved VCS-PD, with the relevant supporting and were found consistent; c. appropriate methods and formulae for calculating baseline GHG emissions have been followed; d. the assumptions, emission factors and default values that were applied in the calculations are correct and evidenced.

E.8.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	The emission reductions from the project activity are based on baseline and project emissions only. The calculations presented at the final MR and corresponding ER calculation spreadsheet were found to be appropriate and in compliance with the provisions of the registered monitoring plan of the approved VCS-PD and applied methodology. The verification team confirms an audit trail that contains the evidences and records of validated figures. It is calculated as follows: $ER_y = BE_y - PE_y - LE_y$ Thus, $ER_y = 142{,}268\ tCO_2e$
Findings	CAR 06, CAR 07

Conclusion	The verification team confirms that appropriate methods and formulae for calculating baseline GHG emissions reductions have been followed. The summary table has been correctly presented at the MR and the figures are correct and justified.

E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	The actual emission reductions were checked against the estimates of the validation. The actual values are a little bit less than the estimated during validation.
Findings	-
Conclusion	The comparison of actual values of the monitoring period with the estimates in the registered VCS-PD is properly presented at the MR. There is a slight decrease (a bit more than 1%) in the actual ERs in comparison with the estimated at the validation.

E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	The actual ERs are quite similar to the estimated at the validation, with a little decrease.
Findings	-
Conclusion	No justification is required as the actual values represent 98.8% of the estimated at the validation.

E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	Earthood Services Private Limited is able to certify that the emission reductions from the GS project activity "Buenos Aires Renewable Energy Project" – GS2290 for the monitoring period from 01/03/2012 to 31/08/2017 (including both days) is 142,268 tCO_2. Verified and certified emission reductions as per commitment period:

Commitment period	Amount
Up to 31/12/2012 (1st commitment period)	28,297 tCO_2e
From 01/01/2013	113,971 tCO_2

Findings	CL 05, CAR 06, CAR 07
Conclusion	Part of the total amount of GHG emissions reductions have been generated during the first commitment period and part from 01/01/2013 onwards. Each amount was correctly apportioned for each commitment period.

E.9. Assessment of reported sustainable development co-benefits

Means of verification	Documents were checked and interviews with PP's representatives and personnel were performed in order assess if there are sustainable development co-benefits with the project activity.
Findings	-
Conclusion	The project activity promotes sustainable development by the use renewable energy, mitigating atmospheric pollution and improving the quality of employment for workers

E.10. Global stakeholder consultation

Means of verification	There were no comments after the publication of the first monitoring report.
Findings	-
Conclusion	Not applicable as no comments have been observed.

SECTION F. Internal quality control

A draft verification report prepared by assessment team is reviewed by an independent Technical Review team (one or more members) to confirm if the internal procedures established and implemented by ESPL were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable Gold Standard and CDM requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of

technical review team are independent of the validation team. The report approved by Quality Manager is endorsed by Managing Director, who is overall responsible to ensure quality, before final release. The further details of applicable procedures and responsibilities about Earthood Quality Management System (QMS) are available on its website (www.earthood.in).

SECTION G. Verification opinion

Earthood Services Private Limited, contracted by Sustainable Carbon - Projetos Ambientais Ltda, has performed the independent verification of the emission reductions for the GS Project "Buenos Aires Renewable Energy Project", in Brazil, for the monitoring period from 01/03/2012 to 31/08/2017, as reported in the Monitoring Report (final) – version 03, dated 13/11/2017.

Sustainable Carbon - Projetos Ambientais Ltda is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity. ESPL commenced the verification against the baseline and monitoring methodology AMS-I.E – version 5.0, the monitoring plan contained in the Registered Gap Analysis Report – version 1.2, dated 23/04/2013, GS Passport – version 01.1, dated 24/04/2013 and Monitoring Report – version 01, dated 20/09/2017.

ESPL confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. This verification report has been prepared using the latest available template specified by UNFCCC and complies with the instructions to follow. The verification activities were conducted in accordance with ESPL's CDM Quality Manual System as per the steps indicated under Section A of this report.

As a result, it is confirmed that the emission reductions from the GS PA (GS2290) "Buenos Aires Renewable Energy Project" are correctly reported in the Monitoring Report (final) – version 03, dated 13/11/2017 and corresponding ER sheet for the monitoring period from 01/03/2012 to 31/08/2017 (including both days) amounted as 142,268 tCO_2e. Therefore, this will be submitted as part of request for issuance as per CDM PCP for Project Activity – version 01.0 and GS Toolkit 2.2.

SECTION H. Certification statement

ESPL's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. ESPL planned and performed the verification by obtaining evidence and other information and explanations that ESPL considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity are fairly stated in the Monitoring Report (final) – version 03, dated 13/11/2017. ESPL, based on outcome of verification activities, certifies in writing that, during the monitoring period from 01/03/2012 to 31/08/2017 (including both days), the registered GS PA "Buenos Aires Renewable Energy Project" achieved the verified amount of 142,268 tCO_2e reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the PA.

The verified amount of emission reductions is stated below as per each CPAs and as per commitment period:

	Emission Reductions (Amount) in this monitoring period	
Year	**Duration**	**Emission reduction**
2012	from 01/03/2012 to 31/12/2012	28,297 tCO_2e
2013	from 01/01/2013 to 31/12/2013	25,868 tCO_2e
2014	from 01/01/2014 to 31/12/2014	23,375 tCO_2e
2015	from 01/01/2015 to 31/12/2015	27,613 tCO_2e
2016	from 01/01/2016 to 31/12/2016	23,840 tCO_2e
2017	from 01/01/2017 to 31/08/2017	13,275 tCO_2e
Total	**from 01/12/2014 to 31/08/2017**	**142,268 tCO_2e**

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
BE	Baseline Emission
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CP	Crediting Period
CPRH	Environmental Agency of the State of Pernambuco
DNA	Designated National Authority
DNPM	National Department of Mineral Production
DOE	Designated Operational Entity
DOF	Document of Forest Origin
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Greenhouse Gas
GS	Gold Standard Foundation
GSC/GSP	Global Stakeholder Consultation Process
IPE	Individual Protective Equipment
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
kW	kilo Watt
kWh	kilo Watt hour
MoC	Modalities of Communication
MoV	Means of Validation
MP	Monitoring Plan
MW	Mega Watt
MWh	Mega Watt hour
PA	Project Activity
PCP	Project Cycle Procedure
PE	Project Emission
PP	Project Participant
PS	Project Standard
SD	Sustainable Development
SDM	Sustainable Development Matrix
SENAI	National Industry Service
tCO_2e	Tonnes of Carbon di oxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCS-PD	Project Design Document
VT	Verification Team
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Competence Statement	
Name	Sergio Bonanno Cruz
Country	Brazil

Education	Post Graduate Diploma in Environment		
Experience	21 Years		
Field	Environmental Law, CDM, Energy, Climate Change		
Approved Roles			
Team Leader	Yes		
Validator	Yes		
Verifier	Yes		
Methodology Expert	Yes (ACM0001, ACM0002, AM0026, ACM0006, AMS ID)		
Local expert	Brazil		
Financial Expert	No		
Technical Reviewer	Yes		
TA Expert	Yes (TA 1.2, 13.1)		
Reviewed by	Abhishek Mahawar	**Date**	16/08/2017
Approved by	Ashok Kumar Gautam	**Date**	16/08/2017

Competence Statement			
Name	Marcelo Sebben		
Country	Brazil		
Education	M.Sc. (Sustainable Energy System) B. Eng. (Chemical Engineering)		
Experience	11 Years		
Field	Chemical process industry, CDM, Energy, Climate Change		
Approved Roles			
Team Leader	Yes		
Validator	Yes		
Verifier	Yes		
Methodology Expert	Yes (ACM0001, ACM0002, ACM0006, AM0065, AMS ID)		
Local expert	Brazil		
Financial Expert	No		
Technical Reviewer	Yes		
TA Expert	Yes (TA 1.1, 1.2, 5.1, 13.1)		
Reviewed by	Abhishek Mahawar	**Date**	16/08/2017
Approved by	Ashok Kumar Gautam	**Date**	16/08/2017

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	UNFCCC	Standard: CDM PS for Project Activity	version 01.0	Other
2.	UNFCCC	Standard: CDM PCP for Project Activity	version 01.0	Other
3.	UNFCCC	Standard: CDM VVS for Project Activity	version 01.0	Other
4.	UNFCCC	Form: CDM-MR-FORM	version 6.0	Other

5.	PP	Monitoring Report (draft)	version 01 – 20/09/2017	PP
6.	PP	Monitoring Report (revised)	version 02 – 11/10/2017	PP
7.	PP	Monitoring Report (final)	version 03 – 13/11/2017	PP
8.	PP	ER Spreadsheet (draft)	version 1	PP
9.	PP	ER Spreadsheet (revised)	version 2	PP
10.	PP	ER Spreadsheet (final)	version 3	PP
11.	PP	Registered VCS-PD	version 8 – 23/04/2010	PP
12.	PP	Registered Gap Analysis Report	version 1.2 – 23/04/2013	Other
13.	PP	Registered GS Passport	version 01.1 – 24/04/2013	Other
14.	UNFCCC	Methodology: AMS-I.E – Switch from Non-Renewable Biomass for Thermal Applications by the User	version 5.0	Other
15.	PP	Biomass: DOFs	2012 / 2013 / 2014 / 2015 / 2016 / 2017	PP
		Purchase invoices	2012 / 2013 / 2014 / 2015 / 2016 / 2017	
		Sales invoices	2012 / 2013 / 2014 / 2015 / 2016 / 2017	
		Excel files with annual control of purchase of biomass by type and ceramic	2012 / 2013 / 2014 / 2015 / 2016 / 2017	
16.	CPRH	License: Operation license # 03.15.06.003208-4	22/06/2015 – valid until 21/06/2017	PP
17.	DNPM	Clay Extraction: - Authorization # 174/2009	07/05/2013 – valid until 03/01/2023	PP
	CPRH	- Operation license # 05.16.05.002319-2	01/06/2016 – valid until 01/06/2019	PP
18.	PP	Leakage: - Study “Renewable Biomass Surplus in the State of Ceará, Brazil” – version 02	November/2012	PP
19.	PP	Production: - Handwritten report of daily production of ceramic devices	2012 / 2013 / 2014 / 2015 / 2016 / 2017	PP
		- Excel files with annual control of production by kiln	2012 / 2013 / 2014 / 2015 / 2016 / 2017	
20.	PP	SD Indicators: - Record of use of ashes	2012 / 2013 / 2014 / 2015 / 2016 / 2017	PP
	PP	- Record of distribution of IPEs	2012 / 2013 / 2014 / 2015 / 2016 / 2017	
	Dr. Iraldo Guerra	- Occupational Health and Medical Control Program	2012 / 2013 / 2014 / 2015 / 2016 / 2017	
	PP	- Environmental Risk Prevention Program	2012 / 2013 / 2014 / 2015 / 2016 / 2017	
	SENAI	- Atmospheric emissions report	2012 / 2013 / 2014 / 2015 / 2016 / 2017	
	Geração Vapor SETEC	- Monitoring Report of Pollutant Gases Emissions	2012 / 2013 / 2014 / 2015 / 2016 / 2017	
	PP	- Partial payment of professional courses for employees	2012 / 2013 / 2014 / 2015 / 2016 / 2017	
	PP	- Record of payment of bonus to the employees due to production	2012 / 2013 / 2014 / 2015 / 2016 / 2017	

21.	-	Brazilian Institute for the Environment	http://www.ibama.gov.br/	Other
22.	-	The Gold Standard Foundation	http://www.goldstandard.org/	Other
23.	-	The Gold Standard Energy Toolkit – version 2.2	http://www.goldstandard.org/sites/default/files/gsv2.2_toolkit.pdf	Other
24.	-	IPCC publications	www.ipcc-nggip.iges.or.jp	Other
25.	-	Environmental Agency of the State of Pernambuco (CPRH)	www.cprh.pe.gov.br/	Other
26.	-	UNFCCC	http://cdm.unfccc.int	Other
27.	-	VCS	http://www.v-c-s.org/	Other

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

Table 1. Remaining FAR from validation and/or previous verification

FAR ID	01	**Section no.**	E.2, E.6.2	**Date :** 27/09/2017
Description of FAR				
In case the ceramic factory uses another type of renewable biomass, a new assessment shall be developed in the future. DOE shall validate the results from new generated reports.				
Project participant response				**Date :** 11/10/2017
Buenos Aires has been utilizing the same biomass types described in the PDD: Wood Residues, Eucalyptus, Algaroba Wood and Native wood with sustainable management plan.				
Documentation provided by project participant				
-				
DOE assessment				**Date:** 18/10/2017
As per the interviews performed with the ceramic representatives, biomass supplier and by the site visit, the verification team was able to confirm that only the biomasses, which use was validated during the validation process, are being used by ceramic. Therefore, no new assessment is required.				

FAR ID	02	**Section no.**	E.2, E.6.3	**Date :** 27/09/2017
Description of FAR				
DOE shall interview a biomass supplies at verification stage in order to corroborate that biomass supply represent a new source of income.				
Project participant response				**Date :** 11/10/2017
DOE interviewed a biomass supplier and it was reported that the project represents a new source of income for this biomass supplier.				
Documentation provided by project participant				
-				
DOE assessment				**Date:** 18/10/2017
The verification team has interviewed an algaroba supplier during the site visit. It was possible to confirm that the supply of the biomass to the ceramic constitutes a business activity for him, representing an important new source of income, which would not possible in the absence of the project activity. By this interview and the interviews with ceramic representatives, it was possible to confirm that this is also what occurs for the suppliers of other biomasses, as the project activity opened new opportunities for all of them.				

Table 2. CL from this verification

CL ID	03	**Section no.**	E.3	**Date :** 27/09/2017
Description of CL				
As per GS site visit requirements, a site visit shall be conducted in the first two years of the crediting period. As the crediting period starts on 01/03/2012, the first verification site visit should have been conducted by February/2015. *No justification was given for the non-fulfilment of the GS site visit requirement.*				
Project participant response				**Date :** 11/10/2017

The project was validated under the Verified Carbon Standard (VCS) in April/2010 and the project crediting period was defined as 10 years (from 01/01/2010 to 31/12/2019). The first monitoring period (01/01/2010 to 29/02/2012) in VCS+Socialcarbon was verified in March/2013. The first verification site visit for auditing the 1st VCS Monitoring Report (MR) and the Social Carbon Report (SCR) Point Zero occurred on 30/08/2012 by Bureau Veritas Certification. *In the beginning of 2013, Sustainable Carbon decided to carry out a gap analysis to Gold Standard. The Gap Analysis was validated in November/2013. The GS review was concluded in October/2014, and the Registration Date under the Gold Standard occurred on 27/11/2014, i.e., more than 2 year after the start of the project crediting period.*
Documentation provided by project participant
MR – version 02
DOE assessment **Date:** 18/10/2017
The situation described above by the PP was reported to the DOE. It was understood by the verification team that, as the GS crediting period is a continuation of the original VCS crediting period; and that, as the validation of the project activity under GS was just a confirmation of the validation already performed under VCS, this first verification under GS is actually the second verification of the project activity. Therefore, for the verification team, the GS site visit requirements would not apply for the present project activity.

CL ID	04	**Section no.**	E.6.2	**Date :** 27/09/2017
Description of CL				
As per the registered VCS-PD, parameter Leakage due to competing uses of biomass*, at Section D.2 of the MR, is to be annually monitored. No justification was given for just one value for all monitoring period to be presented.*				
Project participant response				**Date :** 11/10/2017
According to CDM General guidance on leakage in biomass project activities v.03 (http://cdm.unfccc.int/methodologies/SSCmethodologies/approved/history/c_leak_biomass/guid_biomass_v03.pdf), section 18, the project participant shall evaluate ex ante if there is a surplus of the biomass in the region of the project activity, which is not utilized. *Therefore, the renewable biomass surplus values were not updated from the values presented in the PD.* *In addition, Sustainable Carbon performs an annual assessment of the occurrence of leakage from this source.*				
Documentation provided by project participant				
MR – version 02				
DOE assessment				**Date:** 18/10/2017
It is clear now that the parameter is set ex-ante and that the PP is responsible for monitoring the occurrence of leakage due to competing uses of biomass. Thus, the amount of biomass used by the project activity in each year of the crediting period is compared to total biomass available, as estimated on the PDD, which is being performed by the Sustainable Carbon.				

CL ID	05	**Section no.**	E.8.7	**Date :** 27/09/2017
Description of CL				
There are emission reductions generated before 01/01/2013 that are not reported as such at Section E.4 of the MR.				
Project participant response				**Date :** 11/10/2017
The emission reductions generated before 01/01/2013 was reported at Section E.4 of the MR.				
Documentation provided by project participant				
MR – version 02				
DOE assessment				**Date:** 18/10/2017
The emissions reductions were correctly reported at the revised MR: the ones generated before 01/01/2013 and the ones generated after 01/01/2013.				

Table 3. CAR from this verification

CAR ID	06	**Section no.**	E.6.2, E.8.1, E.8.4, E.8.7	**Date :** 27/09/2017
Description of CAR				
The values for parameter PR_y *at Section D.2 of the MR are not consistent with presented evidences for the months: 2013 – December; 2014 – November; 2015 – May and October; 2016 – December; 2017 – February and August.* *In addition, the crosscheck of the production with the consumption of biomass has not been presented, as set by the registered PDD.*				

Project participant response	Date : 11/10/2017
All the inconsistent data were correct; in addition control spreadsheet were updated as well as the calculation spreadsheet and monitoring report. *The crosscheck of the production with the consumption of biomass are presented in table 07. Double Check (QA/QC Procedure).*	
Documentation provided by project participant	
MR – version 02; Excel MR calculations – v. 02	
DOE assessment	**Date:** 18/10/2017
The values presented were revised and they are now consistent with evidences presented to the verification team.	

CAR ID	07	Section no.	E.6.2, E.8.1, E.8.4, E.8.7	Date : 27/09/2017
Description of CAR				
The values for parameter $Q_{renbiomass}$ at Section D.2 of the MR are not consistent with presented evidences for the months: 2012: March, April, May, June, July and August; 2013: January, February, April, May, September, October and November; 2014: August; 2015: March; 2016: June.				
Project participant response				**Date :** 11/10/2017
All the inconsistent data were correct; in addition control spreadsheet were updated as well as the calculation spreadsheet and monitoring report.				
Documentation provided by project participant				
MR – version 02; Excel MR calculations – v. 02				
DOE assessment				**Date:** 18/10/2017
The values presented were revised and they are now consistent with evidences presented to the verification team.				

CAR ID	08	Section no.	E.6.3	Date : 27/09/2017
Description of CAR				
The SD Indicators presented at Annex 1 of the MR are not in accordance with the ones of the registered GS Passport. *In addition:* *a. Indicator # 01: explain the monitoring of the indicator, as it is not being performed as per the monitoring plan;* *b. Indicator # 02: explain the control of disposal of ashes and their destination;* *c. Indicator # 03: not all safety practices evidenced during the site visit have been reported;* *d. Indicator # 05: it is not clear if there is or there is not increase in the income of biomass suppliers resulted from the project activity.*				
Project participant response				**Date :** 11/10/2017
The SD indicators presented at Annex 1 of the MR were corrected and are in accordance with the ones of registered in GS Passport Version 05. *In addition: All indicators were corrected and are presented in Version 02 of the MR.* *Indicator # 01: The monitoring of the indicator was better than stipulated in Passport Version 05.0 because presents real number about atmospheric emissions. During the Validation of this project, the ceramic factory did not have specific procedures to control and monitor atmospheric emissions, the Ringelmann smoke charts was chosen to be the parameter. After validation, the Buenos Aires Ceramic made an Inventory of atmospheric emissions. This document presents more information that Ringelmann smoke charts.* *Indicator # 02: All the ashes are used to fertilize the eucalyptus plantation.* *Indicator # 03: All safety practices evidenced during the site visit have been reported.* *Indicator # 05: There is an increase in the income of biomass suppliers resulted from the project activity.*				
Documentation provided by project participant				
MR – version 02				
DOE assessment				**Date:** 18/10/2017
The SD Indicators are in accordance with the latest version of the GS Passport, which has been validated during the validation process. All indicators were revised and now are in accordance with evidences and scenarios checked during the site visit. In addition, the monitoring of Indicator #1 is now better performed and in accordance with environmental requirements of the local authority. Nevertheless, as it is being performed differently than planned during the validation process, this new monitoring has been described as a permanent change from registered monitoring plan and discussed at Section E.4.5 above of this Report. In addition, as the change has no material impact on the applicability of the applied methodology or the accuracy and completeness of the monitoring, it does not require prior approval.				

Table 4. FAR from this verification

There is no FAR from this verification.

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Document information

Version	*Date*	*Description*
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.

Decision Class: Regulatory
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