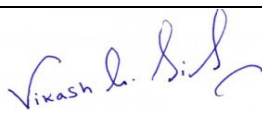




Verification and certification report for GS project activities

BASIC INFORMATION

Title and GS reference number of the project activity	Burn Stoves Project in Kenya (GS 5642)
Scale of the project activity	☒ Large-scale ☐ Small-scale
Version number of the verification and certification report	1.2
Completion date of the verification and certification report	10/11/2023
Monitoring period number and duration of this monitoring period	MP 4 of crediting period 2 01/04/2022 to 13/03/2023 (both days included)
The version number of the monitoring report to which this report applies	4.0, Dated :09/11/2023
The crediting period of the project activity corresponding to this monitoring period	2 nd Crediting Period 26/04/2017 to 25/04/2024 (Including both days)
Project participants	ECO Climate Capital
Project representative(s)	ECO Climate Capital
Host Party	Kenya
Applied methodologies and standardized baselines	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC); Version 3.1
Sectoral scopes, if applicable	3/3.1 Energy Demand
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	1,427,826 tCO ₂ e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	492,874tCO ₂ e
SDG Impacts:	• SDG 1: End poverty in all its forms everywhere • SDG 3: Ensure healthy lives and promote well-being for all at all ages. • SDG 4: Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university. • SDG 5: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household.

	• SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all • SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all • SDG 13: Climate Action • SDG 15: Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally
Name and UNFCCC reference number of the DOE	E-0052: Carbon Check (India) Private Ltd.
Name, position and signature of the approver of the verification and certification report	 Vikash Kumar Singh, Compliance Officer

SECTION A. Executive summary

>>

The Project Participant, “ECO Climate Capital” has appointed the Validation & verification body (VVB), Carbon Check (India) Private Ltd. (CC IPL) to perform fourth (4th) verification (of 2nd crediting period) of the GS Project Activity “Burn Stoves Project in Kenya” in Kenya (hereafter referred to as “Project Activity”). The objective of the Burn Stoves Project in Kenya is to improve health and incomes throughout Kenya by reducing time and money spent acquiring fuel for household cooking. The project stoves are expected to replace the inefficient traditional stoves used in the baseline. As a result, the project results in reductions of CO₂ emissions that are real, and measurable and gives long-term benefits to the mitigation of climate change.

This report summarises the findings of the verification of the project, performed on the basis of Gold standard for global goals (GS4GG), as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the Gold Standard. Verification is required for all registered GS project activities intending to confirm their achieved emission reductions and proceed with request for issuance of ERs. This report contains the findings and resolutions from the verification and a certification statement for the verified emission reductions.

Verification is the periodic independent review and ex-post determination of both quantitative and qualitative information by a Validation & verification body (VVB) of the monitored reductions in GHG emissions that have occurred as a result of the registered GS project activity during a defined monitoring period.

Certification is the written assurance by a Validation & verification body (VVB) that, during a specific period, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and certify emission reductions reported for the “Burn Stoves Project in Kenya” in the host country “Kenya” for the period 01/04/2022 to 13/03/2023 (Including both days).

The purpose of verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data and used to confirm the reductions in anthropogenic emissions by sources, are sufficient, definitive and presented in a concise and transparent manner. CC IPL’s objective is to perform a thorough, independent assessment of the registered project activity.

In particular, the monitoring plan, monitoring report and the project’s compliance with relevant GS and host Party criteria are verified in order to confirm that the component project/s has/have been implemented in accordance with the previously registered project design and conservative assumptions, as documented. It is also confirmed if the monitoring plan is in compliance with the registered/revised PDD and the approved monitoring methodology.

Scope:

The scope of the verification is:

- To verify the project implementation and operation with respect to the registered PDD /B03/
- To verify the implemented monitoring plan with the registered PDD /B03/ and applied baseline and monitoring methodology.
- To verify that the actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.

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

Verification process:

The verification comprises a review of the monitoring report over the monitoring period from 01/04/2022 to 13/03/2023 (Including both days) and based on the registered PDD /B03/ in part of the monitoring

parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology and all related evidence provided by project participant.

Document review and On-site interviews are also performed as part of the verification process.

Conclusion:

The verification team assigned by the Validation & verification body (VVB) concludes that the monitoring report (Version 3 dated 16/08/2023) /01/, meet all relevant requirements of the Gold Standard as per the requirements of GS4GG. The verification has been conducted in-line with the GS4GG requirements.

The project activity was correctly implemented according to the selected monitoring methodology, monitoring plan and the registered PDD/B03/. The monitoring system was implemented, and maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. Through the document review and On-site interviews, the verification team confirms that the project activity has resulted in the 492,874tCO₂e SDG impact (as per ER) achieved in this monitoring period.

CC IPL as a Validation & verification body (VVB) is therefore pleased to issue a positive verification opinion expressed in the attached Certification statement.

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/document review	Site Visit	Interviews	Verification findings
1.	Team Leader / Verifier / Technical Expert	IR	Sharma	Harish	CC IPL	X		X	X
2.	Assessor	IR	Bankar	Siddhant	CC IPL	X	X	X	X
2.	Local Expert	ER	Okumu	Willis	CC IPL		X	X	

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	IR	C.	Indumathi	CC IPL
2.	Approver	IR	Singh	Vikash Kumar	CC IPL

SECTION C. Means of verification

C.1. Desk/document review

>>

The verification was performed primarily based on the review of the Monitoring report /01/ and the supporting documentation. This process included review of data and information presented to verify their completeness and a review of the monitoring plan and monitoring methodology. Documents reviewed or referenced during the verification are listed in Appendix 3 below.

C.2. On-site inspection

GS4GG Principal and requirement version 1.2/B02/ and GS site visit and remote audit requirement v2.0/B02/, VVB is required to conduct an on-site inspection for large-scale project activity. Furthermore, an on-site visit is done for the verification activity. The following activities have been carried out during on-site visit.

The validation & verification team has carried out on-site interviews with enumerators involved in monitoring to assess the information included in the project design document, and stakeholder consultation report. During the desk review, the relevant records related to project design, implementation and operation were checked, stakeholders engaged, and implementing agency and on-site beneficiary interviews were taken on a sampling basis.

The verification team applied a sampling approach for on-site interviews as part of verification in accordance with paragraph 26 of the Standard: Sampling and surveys for CDM project activities and programs of activities, Version 09.0. In accordance with paragraph 28 of the sampling standard, acceptance sampling has been chosen by the verification team, and accordingly, the steps listed in paragraph 29 of the sampling standard were followed. So, in accordance with paragraph 39 © of the sampling standard the Verification team opted for AQL of 0.5% and UQL of 20%; producer risk of 10 %, and consumer risk of 5 % in determining the VVB's sample size for which the sample size (n) is 14 with acceptance numb©(c) 0.

C.3. Interviews

Interviews of cookstove user was taken by a Verification team. All surveys were conducted in person and photos of end users and GPS coordinates were taken as records. Submitted photos, snapshots, and ER sheets maintained of the site survey were checked by the verification team to confirm. The VV plan was shared with the PD on dated 14/07/2023. In line with the VV plan, the VVB team has interviewed the PD team members involved in the survey and the 14 end users.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1	Mwende	Peninah	Burn Manufacturing	24/07/2023	Project implementation and operation, monitoring procedure, data and information flow	Siddhant Bankar, Willis Okumu
2	Kahivs	Stanley	Burn Manufacturing	24/07/2023	Project implementation and operation, monitoring procedure, data and information flow	Siddhant Bankar, Willis Okumu
3	Wangari	Lilian	Burn Manufacturing (Enumerator)	24/07/2023	Project operation, monitoring procedure, data and information flow	Siddhant Bankar, Willis Okumu
4	Mwaura	Eunice	Burn Manufacturing (Enumerator)	25/07/2023	Project operation, monitoring procedure, data and information flow	Siddhant Bankar, Willis Okumu
5	Mwaura	Teresia	Burn Manufacturing (Enumerator)	26/07/2023	Project operation, monitoring procedure, data and information flow	Siddhant Bankar, Willis Okumu
6	Waruingi	Joe	Burn Manufacturing (Enumerator)	24/07/2023	Project operation, monitoring procedure, data and information flow	Siddhant Bankar, Willis Okumu
7	Kwambai	Winnie	Burn Manufacturing (Enumerator)	25/07/2023	Project operation, monitoring procedure, data and information flow	Siddhant Bankar, Willis Okumu
8	otiono	Marcqlus 145451225 Age 2-3 yrs	End-user	24/07/2023	Stove functionality, Number of eaters, Number of meals cooked, use of baseline stove, Frequency of use of baseline stove (if applicable), Number of meals cooked on baseline stove	Siddhant Bankar, Willis Okumu
9	Mombi	Miram 141058183 Age 2-3 yrs	End-user	24/07/2023	Stove functionality, Number of eaters, Number of meals cooked, use of baseline stove, Frequency of use of baseline stove (if applicable), Number of meals cooked on baseline stove	Siddhant Bankar, Willis Okumu

10	Karimi	Bancy 306138074 Age 3-4 yrs	End-user	24/07/2023	Stove functionality, Number of eaters, Number of meals cooked, use of baseline stove, Frequency of use of baseline stove (if applicable), Number of meals cooked on baseline stove	Siddhant Bankar, Willis Okumu
11	Kiora	Joseph 130806267 Age 3-4 yrs	End-user	24/07/2023	Stove functionality, Number of eaters, Number of meals cooked, use of baseline stove, Frequency of use of baseline stove (if applicable), Number of meals cooked on baseline stove	Siddhant Bankar, Willis Okumu
12	Jerry	Marine 111901993 Age 4-5 yrs	End-user	24/07/2023	Stove functionality, Number of eaters, Number of meals cooked, use of baseline stove, Frequency of use of baseline stove (if applicable), Number of meals cooked on baseline stove	Siddhant Bankar, Willis Okumu
13	Kiara	Joseph 111565394 Age 4-5 yrs	End-user	24/07/2023	Stove functionality, Number of eaters, Number of meals cooked, use of baseline stove, Frequency of use of baseline stove (if applicable), Number of meals cooked on baseline stove	Siddhant Bankar, Willis Okumu
14	Nderitu	Simon Mburu 108144031 Age 5-6 yrs	End-user	24/07/2023	Stove functionality, Number of eaters, Number of meals cooked, use of baseline stove, Frequency of use of baseline stove (if applicable), Number of meals cooked on baseline stove	Siddhant Bankar, Willis Okumu
15	Karanja	Margaret 3494892506 Age 5-6 yrs	End-user	25/07/2023	Stove functionality, Number of eaters, Number of meals cooked, use of baseline stove, Frequency of use of baseline stove (if applicable), Number of meals cooked on baseline stove	Siddhant Bankar, Willis Okumu
16	Mari	Rebecca Age 6-7 yrs	End-user (Non-User)	25/07/2023	Current stove being used, Reason for stop using the Burn stove.	Siddhant Bankar, Willis Okumu

17	Izituzi	Savsan Nqlima 3036713991 Age 6-7 yrs	End-user	25/07/2023	Stove functionality, Number of eaters, Number of meals cooked, use of baseline stove, Frequency of use of baseline stove (if applicable), Number of meals cooked on baseline stove	Siddhant Bankar, Willis Okumu
18	Wanyonyi	Sabato 1431927339 Age 7-8 yrs	End-user	25/07/2023	Stove functionality, Number of eaters, Number of meals cooked, use of baseline stove, Frequency of use of baseline stove (if applicable), Number of meals cooked on baseline stove	Siddhant Bankar, Willis Okumu
19	Jane	Muchiri Age 7-8 yrs	End-user (Non-User)	26/07/2023	Current stove being used, Reason for stop using the Burn stove.	Siddhant Bankar, Willis Okumu
20	Murger	Ednah 1386001104 Age 8-9 yrs	End-user	26/07/2023	Stove functionality, Number of eaters, Number of meals cooked, use of baseline stove, Frequency of use of baseline stove (if applicable), Number of meals cooked on baseline stove	Siddhant Bankar, Willis Okumu
21	Dinah	Mayaka Age 8-9 yrs	End-user (Non-User)	26/10/2020	The current stove being used, Reason for stop using the Burn stove.	Siddhant Bankar, Willis Okumu

SECTION D. Verification findings

D.1. Remaining forward action requests from validation and/or previous verifications

>>

There were 01 forward action requests from the previous verification–MP03 - 01/06/2020 to 31/03/2022.

FAR ID	01	Section no.	Date: 28/06/2022
Description of CAR			
The project activity should undergo a design change before the next verification for the revision of monitoring plan for the parameter Pb, y. (Baseline charcoal consumption) The monitoring plan should be changed from ex-post to fixed ex-ante.			
Project participant response			Date: 09/11/2023
PD carried out design change that has revised the parameter Pb,y such that the parameter is now fixed ex ante. This design change was approved on 28 June 2023. The approval form has been shared as a support documentation.			
Documentation provided by project participant			
<i>Design change approval</i>			
GS VVB assessment			Date: 10/11/2023
The parameter Pby has been included in as a “data to be monitoring” in the previous monitoring reports. However, the methodology does not require this parameter to be monitored ex post and can be fixed ex ante. Project representative has requested GS for a shift in the position of this			

parameter from “to be monitored” to “fixed ex ante” during the verification of the third monitoring period (01/06/2020 to 31/03/2022) and VVB has raised a FAR in the verification report version 6 dated 21/10/2022. The FAR states that “The project activity should undergo a design change before the next verification for the revision of monitoring plan for the parameter Pb, y. (Baseline charcoal consumption) The monitoring plan should be changed from ex-post to fixed ex-ante.” Which has been approved by GS. The project representative has included this revision in the design change and therefore there is no incompliance observed by VVB. Justification has also been added in section C.3(c) and c.2 of validation report. Furthermore, VVB has reviewed the design change approval/03/ and deems appropriate to VVB.

D.2. Compliance of the project implementation and operation with the registered project design document

Means of verification	DR, I, OSV
Findings	--
Conclusion	CCIPL by means of document review and on-site interview, assessed that all the features (technology, project equipment, and monitoring) of the registered PDD /B03/ are in place and that the project participants have operated the project as per the registered/ PDD /B03/. The location of the project activity is clearly defined in the registered PDD /B03/. PP has implemented a project in Kenya that seeks to improve health and incomes throughout Kenya by reducing the time and money spent acquiring fuel for household and institutional cooking. The Jikokoa stove is a charcoal stove featuring a refractory metal combustion chamber backed by abrasion-resistant, lightweight ceramic insulation. The verified/B03/ specification of the Jikokoa stove is as below: Power Output: 1.175 kW Thermal Efficiency: 44.9% Based on a review of the documents and On-site interview, the verification team confirms that up to the reported monitoring period, the PD has distributed /02/,/11/ total of 367,288 improved cookstoves. As verified during the On-site interviews, the project implementation and operation, and the physical features of the project stoves comply with the registered project design document /B03/. The verification team has checked the information in the monitoring report /01/ and compared it against the registered/ PDD /B03/ and found it consistent. During the On-site interviews, the verification team checked the project location, implementation, technology applied, project equipment, physical features, and monitoring system against the information in the registered /B03/. The verification team confirms that: a) The project activity is implemented as per registered PDD/B03/. b) The actual operation of the proposed CDM project activity is in line with the registered/ PDD/B03/. In summary, the monitoring period is reasonable, and the operation of the project activity is in accordance with the registered PDD /B03/.

D.3. Post-registration changes

D.3.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

>>

Not Applicable

D.3.2. Corrections

>>

Not applicable

D.3.3. Changes to the start date of the crediting period

>>

Not applicable

D.3.4. Inclusion of a monitoring plan

>>

Not applicable

D.3.5. Permanent changes from the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

Reference to Design change approval dated 28/06/2023/03/, the following permanent changes have been approved in relation to the Sustainable development goals and applied Baseline:

- 1) The number of project Sustainable Development Contributions has been increased from the current four (4) SDG goals (SDGs 1, 3, 8 & 13) to a total of 8 goals with addition of SDGs 4,5,7 & 15. Appropriate target indicators, methodological choices and monitoring approaches have been included in the updated PDD version 4.8 dated 09/06/2023.
- 2) Baseline Fuel consumption (parameter $P_{b,y}$) has is now fixed ex-ante and not monitored biennially. This can be seen in the updated PDD version 4.8 dated 09/06/2023.
- 3) The non-CO2 emission factor that was previously being claimed as 0 has been updated to 9.46 tCO2/TJ. This value is based on the IPCC guidelines.
- 4) The Net Calorific Value ("NCV") in the PDD has been adjusted to 0.015 TJ/ton for wood fuel. In furtherance of this change, the PD further adjusted the NCV in the emissions reductions calculations to 0.156 TJ/Ton respecting the Gold Standard clarification CL_171 issued on 08/06/2023.

The above four changes have been done by PD in accordance with requirements set out in GS Design change requirements v1.1, VVB has checked the assessment report for the design change available at GS registry/B03/ and approved the design change form by gold standard/00/, VVB confirmed that the design change is done in line with the requirement set out by GS4GG.

D.3.6. Changes to the project design

>> Not applicable

D.3.7. Changes specific to afforestation and reforestation project activities.

>>

Not applicable

D.4. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents.

Means of verification	Document Review, Interview
Findings	-
Conclusion	The verification team has confirmed the monitoring plan from registered PDD and monitoring plan, monitoring methodology and applicable tools used during this monitoring period. The verification team has confirmed the monitoring procedures during the on-site interviews with enumerators and end users and from document review by means of comparison with the information given in the monitoring plan

	and monitoring methodology. VVB confirms that the monitoring plan is in accordance with the approved methodology /B01/ and registered PDD /B03/.
--	--

D.5. Compliance of monitoring activities with the registered monitoring plan

D.5.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	Document Review, Interview
Findings	--
Conclusion	Verification team confirms that the data and parameters fixed ex-ante are in compliance with the registered/ PDD /B03/ and monitoring plan. Please refer to the Annex 1 for assessment of each parameter.

D.5.2. Data and parameters monitored.

Means of verification	Document Review, Interview
Findings	-
Conclusion	The verification team confirms that the data and parameters monitored are in compliance with the registered/revised PDD /B03/ and the monitoring plan provided in registered PDD/B03/. It is confirmed that the verification team assessed the data/information flow from the point of monitoring to emission reduction calculation and found no gap in the same. Detailed assessment of each parameter has been provided in Annex 2.

D.5.3. Implementation of sampling plan

Means of verification	Document Review, Interview
Findings	-
Conclusion	Monitoring surveys were conducted during the current monitoring period. 1. The total population of the stoves under project activity considered for the monitoring period is 367,288. The monitoring parameters monitored through the sampling plan are:–$U_{p,y}$ - Usage rate in project scenario p during year y–$N_{p,y}$ - Project technologies credited (units) 2. –$E_{p,y}$ - Leakage in project scenario p during year y Data collection for usage/monitoring survey was conducted from 13 March 2023 to 5 May 2023, where a total of 357 Usage Monitoring surveys were conducted by PP. Sampling-based monitoring was carried out for two monitoring parameters: Usage rate and Project Fuel consumption. The Project fuel consumption values are being used from the results of a KPT conducted in the previous Monitoring period as it is being applied at a biennial frequency. The KPT was applicable as it was established that the precision level of 90/10 was achieved, and the average fuel savings was therefore used for the ER calculations. Random sampling was applied for the project activity by PD for the selection of the monitoring samples with 90/10 confidence/precision for all the parameters of annual monitoring which is deemed acceptable as per the registered PDD. In total 357 HH were sampled by PD as a result 237 HH was found to be using ICS. However, 120 HH were found as non-users (damaged ICS or were being used for commercial purpose). Accordingly $U_{p,y}$ was calculated as 66.39%. Applying the random number generator, the cookstoves were randomly picked from the defined population up to the required sample size as calculated by the PD. The verification team confirms that the applied method for sample size calculation is in accordance with the registered PDD. The sampling plan implemented by the PD is in accordance with the approved monitoring methodology and the PDD. The PD has appropriately performed the Random Sampling procedure in line with the applied methodology and registered

	PDD and is best suited for this type of project. The necessary confidence/precision of 90/10 for each of the parameters is met. This has been cross-verified by the verification team from the supporting documents submitted and through random acceptance sampling. The verification took cognizance of “Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC); Version 3.1/B01/” and registered/ revised PDD/B03/. The verification team applied a sampling approach for on-site interviews as part of verification in accordance with paragraph 26 of the Standard: Sampling and surveys for CDM project activities and programs of activities, Version 09.0. In accordance with paragraph 28 of the sampling standard, acceptance sampling has been chosen by the verification team, and accordingly, the steps listed in paragraph 29 of the sampling standard were followed. So, in accordance with paragraph 39 (c) of the sampling standard the Verification team opted for AQL of 0.5% and UQL of 20%; producer risk of 10 %, and consumer risk of 5 % in determining the VVB's sample size for which the sample size (n) is 14 with acceptance number (c) 0. 14 sample was selected randomly from the list of 357, from which VVB found 3 HH which no longer using ICS due to damage, and 11 HH were found to be using ICS.
--	---

D.6. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	Document Review, Interview
Findings	-
Conclusion	N/A, since there is no monitoring equipment that require calibration.

D.7. Assessment of data and calculation of emission reductions or net removals

Means of verification	Document Review, Interview
Findings	-
Conclusion	The equations for baseline emissions, as provided in the monitoring report /01/ and confirmed with the registered PDD /B03/, the methodology Technologies and practices to displace decentralized thermal energy consumption (TPDDTEC), version 3.1 /B01/ and supporting tools are: SDG 13: The methodology directly provides the following equation for emission reductions; without separate baseline, project or leakage emission reduction equations. $ERY = \sum_{b,p} (N_{p,y} * U_{p,y} * P_{p,b,y} * NCV_{b,fuel} * (f_{NRB,b,y} * EF_{fuel,CO2} + EF_{fuel,nonCO2})) - \sum LE_{p,y} \quad (1)$ Where: $\sum_{b,p}$ Sum over all relevant (baseline b/project p) couples $N_{p,y}$ Cumulative number of project technology-days included in the project database for project scenario p against baseline scenario b in year y $U_{p,y}$ Cumulative usage rate for technologies in project scenario p, in year y, based on cumulative adoption rate and drop off rate revealed by usage surveys (fraction) $P_{p,b,y}$ Specific wood fuel savings for an individual technology of project p against an individual technology of baseline b in year y, in tonnes/day, as derived from the statistical analysis of the data collected from the field tests $f_{NRB,b,y}$ Fraction of biomass used in year y for baseline scenario b that can be established as non-renewable biomass $NCV_{b,fuel}$ Net calorific value of the wood fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/tonne) $EF_{b,fuel,CO2}$ CO2 emission factor of the wood fuel that is substituted or reduced. (112 tCO2/TJ for Wood/Wood Waste)

	$EF_{b,fuel,nonCO2}$ CO2 emission factor of the wood fuel that is reduced $LE_{p,y}$ Leakage for project scenario p, in year y (tCO₂e/yr) From the above equation and the parameter values, emission reductions for the period 01/04/2022 to 13/03/2023 (inclusive of both dates) are calculated as: GS5642: 492,874VERs The verification team confirms that the calculation of baseline emission and emission reductions is in accordance with the applied methodological equation and the registered PDD/B01/. Calculations have been checked and confirmed from the ER spreadsheet/02/. The verification took cognizance of Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC); Version 3.1/B01/ Registered PDD/B03/ and GS4GG requirements/B02/.
--	--

D.7.1. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

>> NA

D.7.2. Calculation of leakage GHG emissions

Means of verification	Document Review, Interview
Findings	-
Conclusion	The leakage was determined in the last KT. This is as per the approved PDD for the project activity. Therefore, during this period, the leakage was not assessed. From the surveys during the previous monitoring, as verified by the VVB and approved by GS, it was established that the leakage for this project is zero.

D.7.3. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	Document Review, Interview				
Findings	-				
Conclusion	The verification team confirms that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence, and calculations are done in accordance with the pre-defined formulae from PDD. The total number of ERs achieved during the monitoring period for is 492,874VERs. In summary, the verification team confirms that the actual emission reduction is lower than the estimate of the PDD for the current monitoring period. The verification took cognizance of registered PDD and GS4GG requirements.				
Title and GS reference number of the project activity	Baseline emissions or baseline removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	GHG emission reductions or net GHG removals by sinks (tCO ₂ e)	
				Amount achieved from 01 st April 2022 to 31 st December 2022	Amount achieved in the monitoring period
Burn Stoves Project in Kenya (GS5642)	-			393,043	393,043

		-	-	Amount achieved from 01st January 2023 to 13th March 2023	Amount achieved in the monitoring period
				102,906	102,906
Total					495,949

D.7.4. Comparison of actual SDG impact with estimates in registered PDD.

Means of verification	Document Review, Interview
Findings	-
Conclusion	A comparison of the actual GHG emission reductions with the estimates in the included specific project activity is given in the below table. The verification team took cognizance of registered PDD/B03/ and GS4GG requirements/B02/.

Title and GS reference number of the project activity	SDG Impact	Value estimated in ex-ante calculation in the included PDD	Actual values achieved by the project during this monitoring period
Burn Stoves Project in Kenya (GS5642)	SDG 13: Climate actions	1,427,826	495,949
Burn Stoves Project in Kenya (GS5642)	SDG 1: End poverty in all its forms everywhere	USD 77.99/hh/year	USD 68.61 /hh/year
Burn Stoves Project in Kenya (GS5642)	SDG 3: Ensure healthy lives and promote well-being for all at all ages	96%	95.63%
Burn Stoves Project in Kenya (GS5642)	SDG 4: Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university	50	37
Burn Stoves Project in Kenya (GS5642)	SDG 5: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure, and social protection policies and the promotion of shared responsibility within the household	26	83
Burn Stoves Project in Kenya (GS5642)	SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	293,444	243,830

Burn Stoves Project in Kenya (GS5642)	SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	242	26
Burn Stoves Project in Kenya (GS5642)	SDG 15: Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	384,394	381,830

D.7.5. Remarks on a difference from an estimated value in registered PDD

Means of verification	Document Review, Interview
Findings	--
Conclusion	SDG 13: The ex-ante estimate value of the emission reductions for the monitoring period as per the registered/revised PDD /B03/.is 1,427,826 tCO₂e and the actual emission reductions achieved for the monitoring period /01/, /02/ is 492,874tCO₂e. Actual emission reductions are less than the estimated ones and thus justification for reduction is not required to be assessed. SDG 5: shows a higher achievement in MP4 than what was estimated in the registered PDD. This can be attributed to the fact that SDG 5 is based on actual Survey data collected from households during the usage survey. The actual values are more than the estimated (ex-ante) values which show that the impact of the project on time savings has improved in the HHs which were further crosschecked by VVB during a site visit through an interview with the end user and deemed to be appropriate. Only SDG 5 has a higher value than estimated as other SDGs being considered are less than the estimations provided in registered PDD/B03/ thus no remark for other SDGs. Detailed assessments for monitored SDGs are provided in Appendix 5.2.

SECTION E. Internal quality control

The final verification report passed a technical review before being submitted to the Gold Standard. The technical review is performed by a technical reviewer qualified in accordance with CCIPL's qualification scheme for CDM validation and verification.

SECTION F. Verification/Certification opinion

>>

Carbon Check (India) Private Ltd. (CC IPL) has performed the fourth (4th) periodic verification (of the 2nd crediting period) of the registered GS Project Activity "Burn Stoves Project in Kenya" GS 5642.

The verification team assigned by the VVB concludes that the project activity as described in the PDD (Version 4.8, date 09/06/2023) /B03/ and the Monitoring report (version 3, dated 16/08/2023) /01/, meets all relevant requirements of the Gold Standard. The verification has been conducted in line with the GS4GG requirements for project activities.

Verification methodology and process

The Verification team confirms the contractual relationship signed on 20/02/2023 between the VVB, Carbon Check (India) Private Ltd., and the Project Participant, ECOA Climate Capital. The team assigned to the verification meets the CCIPL's internal procedures including the GS requirements for the team composition and competence. The verification team has conducted a thorough contract review as per GS and CCIPL's procedures and requirements.

The verification has been performed as per the requirements described in the GS4GG and constitutes the review and completion of the following steps:

- Reviewing the registered PDD (Version 4.8, date 09/06/2023) /B03/, including the monitoring plan and the corresponding validation report;
- Desk review of the validation report MR /01/ and other relevant documents including documents related to the project activities in emission reductions;
- Review of the applied monitoring methodology (Technologies and practices to displace decentralized thermal energy consumption (TPDDTEC), version 3.1 /B01/;
- On-site interview (24/07/2023 to 26/07/2023)
- Resolution of CARs and CLs raised during verification.
- Issuance of Verification Report

The project activity was correctly implemented according to the selected monitoring methodology, monitoring plan, and the registered PDD. The monitoring system was installed, and maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. Through the document review and On-site interview, the verification team confirms that the project activity has resulted in the 492,874tCO₂e emission reductions during the 4th monitoring period (2nd crediting period).

This statement covers the verification period from 01/04/2022 to 13/03/2023(including both the dates).

The VVB has raised 02 clarifications and 07 corrective action requests, all of which are closed. Furthermore, VVB has also raised 00 Forward action request during this verification.

The VVB considers necessary to give reasonable assurance that reported GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology and the monitoring plan contained in the registered PDD are fairly stated.

The VVB, hereby certifies that the project activity, achieved emission reductions by sources of GHG equal to 492,874tCO₂e equivalent and all monitoring requirements have been fulfilled and is substantiated by an audit trail that contains evidence and records.

Appendix 1: Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CA	Corrective Action/ Clarification Action
CER	Certified Emission Reduction
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalent
DVR	Draft Verification Report
EB	CDM Executive Board
EF	Emission Factor
FA	Final Approval
FAR	Forward Action Request
FVR	Final Validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LE	Leakage Emissions
MP	Monitoring Period
MR	Monitoring Report
MWh	Mega Watt Hour
OSV	On Site Visit
PE	Project Emissions
PP(s)	Project Participant(s)
PRC	Post registration change
QC/QA	Quality Control/ Quality Assurance
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VVB	Validation & verification body

Appendix 2 : Competence of team members and technical reviewers



Carbon Check (India) Private Limited

Certificate of Competency

Mr. Harish Sharma

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|---|--|---|--|
| ☒ Validator | ☒ Verifier | ☒ Team Leader | ☒ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☒ SDG+ | ☒ Social no-harm(S+) | ☒ Environment no-harm(E+) | ☐ CCB Expert |
| ☐ Financial Expert | ☒ Local Expert for India | | |

in the following Technical Areas:

- | | | | | |
|--|--|----------------------------------|---|----------------------------------|
| ☒ TA 1.1 | ☒ TA 1.2 | ☐ TA 2.1 | ☒ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☒ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | | | |

Issue Date

1st January 2023

Expiry Date

31st December 2023

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO



Carbon Check (India) Private Limited

Certificate of Competency

Mr. Siddhant Bankar

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|---|--|--|--|
| ☒ Validator | ☒ Verifier | ☐ Team Leader | ☒ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | ☐ CCB Expert |
| ☐ Financial Expert | ☒ Local Expert for India | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|--|----------------------------------|---|----------------------------------|
| ☐ TA 1.1 | ☒ TA 1.2 | ☐ TA 2.1 | ☒ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☒ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | | | |

Issue Date

1st January 2023

Expiry Date

31st December 2023

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO



Carbon Check (India) Private Limited

Certificate of Competency

Willis Austine Ochieng Okumu

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|---|--|--|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☐ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | ☐ CCB Expert |
| ☐ Financial Expert | ☒ Local Expert for Kenya | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| ☐ TA 1.1 | ☐ TA 1.2 | ☐ TA 2.1 | ☐ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | | | |

Issue Date

03rd May 2023

Expiry Date

02nd May 2024

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO



Carbon Check (India) Private Limited

Certificate of Competency

Ms. Indumathi C

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|--|--|---|--|
| ☒ Validator | ☒ Verifier | ☒ Team Leader | ☒ Technical Expert |
| ☒ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☒ SDG+ | ☒ Social no-harm(S+) | ☒ Environment no-harm(E+) | ☐ CCB Expert |
| ☒ Financial Expert | ☒ Local Expert for India and Sri Lanka | | |

in the following Technical Areas:

- | | | | | |
|--|--|----------------------------------|---|---|
| ☒ TA 1.1 | ☒ TA 1.2 | ☐ TA 2.1 | ☒ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☒ TA 13.1 | ☒ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | | | |

Issue Date

1st January 2023

Expiry Date

31st December 2023

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

Appendix 3 : Documents reviewed or referenced

Ref no.	Reference Document
/01/	a) 14/06/2023_GS 5642 Monitoring-Report MP 4 v 1.0 b) 19/07/2023 GS 5642 Monitoring Report MP 4 v 2.0 c) 16/08/2023 GS 5642 Monitoring Report MP 4 v 3.0 d) 09/11/2023 GS 5642 Monitoring Report MP 4 v 4.0
/02/	a) 14/06/2023 GS5642 Ex Post ER calculations v1.0 b) 16/08/2023 GS5642 Ex Post ER calculations v3.0 c) CONFIDENTIAL_1NOV2023_ GS5642 Ex Post ER calculations v4.0 d) NON-CONFIDENTIAL_1NOV2023_ GS5642 Ex Post ER calculations v4.0
/03/	Gold Standard review comments including FAR raised during the design change. a. GS5642 GS4GG Design Change DCR2_final 2023/06/29
/04/	GS4GG FAR during the last monitoring. “21/10/2022 _GS 5642_ CCIPL1067 GS FVR v.6_clean”
/05/	a. CONFIDENTIAL 26/05/2023 POA 5642 Employment List b. 26May2023 POA 5642 Employment List c. CONFIDENTIAL 25/07/2023 Employee List support document
/06/	02/03/2023_POA5642_Database and Sampling
/07/	01/03/2023_GS 5642_Database Technology Days and Stoves in Use External
/08/	<i>Training records : Enumerator Participant List and Photos</i>
/09/	26/05/2023 POA 5642 Grievance Tracker File
/10/	Random Sample Generator snapshot and list for each age stove
/11/	Project database records for the parameter Np,y (with a screen shot of database from echo mobile system) “31/05/2023 GS5642 Evidence of Assignments in EM”
/12/	Awareness Campaigns a. 30/05/2023 POA 5642 Household visits -Follow ups visits b. 2 Jikokoa_G3_A6_Flyer c. 31/05/2023 POA 5642 Market Activator Photos d. 31/05/2023 POA 5642 Facebook awareness creation
/13/	SDG 4 training a. 30/05/2023 POA 5642 Enumerator Training Photos b. 31/052023 POA 5642 SDG 4 Training Summary
/14/	20230601_Clarification Request_Burn_NCVwood_HH

Background Documents

Ref no.	Reference Document
---------	--------------------

/B01/	Technologies and practices to displace decentralized thermal energy consumption (TPDDTEC), version 3 https://globalgoals.goldstandard.org/407-ee-ics-technologies-and-practices-to-displace-decentralized-thermal-energy-tpddtec-consumption/
/B02/	a. GS Principal and requirements v1.2 https://globalgoals.goldstandard.org/101-par-principles-requirements/ b. Community Services Activity Requirements v1.2 https://globalgoals.goldstandard.org/200-gs4gg-community-services-activity-requirements/ c. GS validation and Verification standard v1.0 https://globalgoals.goldstandard.org/113-par-validation-and-verification-standard/ d. Site visit and Remote audit requirement v2.0 https://globalgoals.goldstandard.org/112_par_site-visit-and-remote-audit-requirements-and-procedures/
/B03/	a) Registered PDD and Validation Report b) Monitoring report and Verification Report of previous verification c) GS4GG design change assessment report d) GS performance review during the design change.

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

4.1 Clarifications (CLs)

CL ID	01	Section no.	D.3	Date: 19/07/2023
Description of CL				
Under section D.3 of MR, values for P _{b,y} and P _{p,y} is not matching with the values mentioned under section D.1 & D.2, PD to clarify.				
Project participant response				Date: 25/07/2023
The values of P _{b,y} and P _{p,y} have been made consistent across the monitoring report.				
Documentation provided by project participant				
19JULY2023 GS 5642 Monitoring Report MP 4 v 2.0 _ Commented				
GS VVB assessment				Date: 16/08/2023
PD has now updated the values for P _{b,y} and P _{p,y} under section D.3 of the MR, which is now consistent throughout the MR, Hence CL is closed				

CL ID	02	Section no.	D.2	Date: 19/07/2023
Description of CL				
Under section D.2 of the MR, against SDG 8 PD to share employment records for mentioned number of peoples.				
Project participant response				Date: 25/07/2023
The employment records are shared in the form employee list showing all the staff hired in BURN for this monitoring period.				
Documentation provided by project participant				
CONFIDENTIAL 25JUL2023 Employee List support document CONFIDENTIAL 26May2023 POA 5642 Employment List				
GS VVB assessment				Date: 16/08/2023
PD has submitted the employment records for the people hired for this monitoring period, which were further checked and deemed appropriate. CL is closed				

4.2 Corrective action required (CARs)

CAR ID	01	Section no.	Template	Date: 19/07/2023
Description of CAR				
The header footer is missing from the monitoring report template PP to change it in line with the template guide for MR available on the GS website.				
Project participant response				Date: 25/07/2023
The header and footer is provided in the monitoring report to make it consistent with the template available on GS website.				
Documentation provided by project participant				
GS VVB assessment				Date: 16/08/2023
PD has now made appropriate changes in monitoring report template in line with template guide available at GS website hence. CAR is closed				

CAR ID	02	Section no.	A.3	Date: 19/07/2023
Description of CAR				
Under section A.3 of the MR, methodological tools to which the selected methodologies refer should be mentioned. If any				
Project participant response				Date: 25/07/2023
All relevant tools are mentioned in Section A.3.				
Documentation provided by project participant				

GS VVB assessment	Date: 16/08/2023
PD has now updated the section A.3 with relevant methodological tools which is being used in project activity which deemed to be appropriate hence. CAR is closed	

CAR ID	03	Section no.	B.2.4	Date: 19/07/2023
Description of CAR				
Under section B.2.4 of the MR, PP to update with permanent changes, list them by providing the version number and completion date of the revised design certified (i.e., approved) PDD for each and a copy of the approved Design Change approval form should be submitted.				
Project participant response				Date: 25/07/2023
Section B.2.4 has been updated.				
Documentation provided by project participant				

GS VVB assessment	Date: 16/08/2023
As per the assessment report for the design change, four changes were requested by PD. The section needs to be updated with the validity/applicability of the applied methodology, sustainable development criteria, and monitoring plan changes. CAR is open	
Project participant response	Date: 17/08/2023
The PD has provided a description of all 4 changes effected by the Design Change. Furthermore, the PD has also provided an assessment of the validity/applicability of the applied methodology, sustainable development criteria, and monitoring plan changes.	
Documentation provided by project participant	

GS VVB assessment	Date: 18/08/2023
PD has now mentioned all the permanent design change done in VPA-DD along with its impact on different parameter of project which were further checked with the approved assessment report for design change and found to be appropriate hence, CAR is closed	

CAR ID	04	Section no.	D.1	Date: 19/07/2023
Description of CAR				
Under section D.1. of the MR, As per the GS4GG rule update APPLICABILITY OF GLOBAL WARMING POTENTIAL FOR GOLD STANDARD FOR THE GLOBAL GOALS PROJECTS" stipulates in paragraph 2.1.1 All emission reductions and removals accrued by GS4GG projects and PoAs (micro, small and large scale) will be calculated by using the IPCC AR5 GWP values. This requirement will apply to all GS4GG projects and PoAs and shall enter into force from 01 January 2021. Same needs to be updated in the ER calculation sheet.				
Project participant response				Date: 25/07/2023
The ER calculation sheet already has the updated applicable GWP values. The non-CO2 emission factor takes into consideration the GWP values per IPCC AR5.				
Documentation provided by project participant				

GS VVB assessment	Date: 16/08/2023
PD has now updated section D.1 considering the IPCC AR5 GWP values. Furthermore, the values in the ER sheet are calculated using the IPCC AR5 GWP values, which are further confirmed and found to be appropriate. CAR is closed	

CAR ID	05	Section no.	D.2	Date: 19/07/2023
Description of CAR				
Under D.2 of the MR, PP to submit distribution database for cookstoves.				
Project participant response				Date: 25/07/2023
The distribution database is provided in the ER calculation sheet. Please see tab '5642 stove assignments.				
Documentation provided by project participant				

GS VVB assessment		Date: 16/08/2023
PD has now provided the distribution database in the ER calculation sheet, which was further checked by VVB and found to be appropriate. CAR is closed		

CAR ID	06	Section no.	D.2	Date: 19/07/2023
Description of CAR				
Under section D.2 of the MR, PP to Add a footnote when the last KPT was conducted, furthermore if conducted for this MP, PP to provide calibration certificate for weighing scale and KPT records.				
Project participant response				Date: 25/07/2023
The relevant information has been provided under the table for P _{p,y} . Project KPTs have been carried out for the previous MP.				
Documentation provided by project participant				
GS VVB assessment				Date: 16/08/2023
PD has now added a footnote mentioning when the last KPT was conducted, and the same was crosschecked from the previous Monitoring report and found to be correct and same has now been demonstrated under the table for P _{p,y} , Hence CAR is closed				

CAR ID	07	Section no.	D.4	Date: 19/07/2023
Description of CAR				
Under section D.4 of the MR, PD to mention the parameters determined through the sampling approach, further Demonstration that the required confidence/precision level has been met is missing same should be included.				
Project participant response				Date: 25/07/2023
The information has been added.				
Documentation provided by project participant				
GS VVB assessment				Date: 16/08/2023
Under Section D.4. the PD has now provided a description of the confidence/precision levels attained in the last Monitoring Period, as KPTs are set to be monitored biennially in registered VPA-DD, PD has also listed all SDG 13 monitored parameters through sampling which deemed to be appropriate hence. CAR is closed				

Appendix 5.1: Assessment of data and parameters fixed ex-ante at the time of validation

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	$EF_{b,wood,CO_2}$
Data unit	tCO ₂ /TJ
Default values used	112
Purpose of data	To determine the CO ₂ emission factor of the wood fuel
Source of verification of the source	IPCC Default emission factor

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	$EF_{b,wood,nonCO_2}$
Data unit	tCO ₂ /TJ
Default values used	9.46
Purpose of data	To determine the non-CO ₂ emission factor arising from the use of fuels in the baseline scenario
Source of verification of the source	The non-CO ₂ emission factor is based on the AR5 GWP values.

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	$EF_{p,wood,CO_2}$
Data unit	tCO ₂ /TJ
Default values used	112
Purpose of data	To determine the CO ₂ emission factor of the wood fuel
Source of verification of the source	IPCC defaults are applied in conjunction with credible published literature

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	$EF_{p,wood,nonCO_2}$
Data unit	tCO ₂ /TJ
Default values used	9.46
Purpose of data	To determine the CH ₄ emission factor of the wood fuel
Source of verification of the source	The non-CO ₂ emission factor is based on the AR5 GWP values.

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	NCV_b
Data unit	TJ/tonne
Default values used	0.0156
Purpose of data	To determine the calorific value of wood fuel used in the baseline
Source of verification of the source	IPCC 2006 defaults values and PDD

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	NCV_p

Data unit	TJ/ton
Default values used	0.0156
Purpose of data	To determine the net calorific factor of the wood fuel
Source of verification of the source	IPCC 2006 defaults values

Relevant SDG Indicator	SDG 13: Climate Action Target: 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	$f_{NRB,y}$
Data unit	fraction
Default values used	0.97
Purpose of data	To determine the net calorific factor of the wood fuel
Source of verification of the source	C4EcoSolutions report and PDD

Relevant SDG Indicator	SDG 13: Climate Action Target: 13.1 Strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries
Data/parameter	$P_{b,y}$
Data unit	t/household/year
Default values used	3.58
Purpose of data	To determine the net calorific factor of the wood fuel
Source of verification of the source	Default value from registered PDD

Appendix 5.2: Assessment of data and parameters monitored.

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13. Climate Action Target: 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Data / Parameter: (as in monitoring plan of PDD):	$U_{p,y}$ Usage rate in project scenario p during year y
Measuring frequency/Time Interval:	Annually
Reported value & Unit:	66.39% (GS 5642 - 16AUGUST2023 GS5642 Ex Post ER calculations v3.0)
Verified Source of Data	Yes, the parameter was cross-checked by the verification team as per the worksheet usage of GS 5642 - 16 AUGUST 2023 GS5642 Ex Post ER calculations v3.0"/02/ and survey records /02//07/.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, refer assessment above.
Assessment of details of monitoring equipment, its specification, and calibration as per the requirements of registered PDD:	N/A
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring	NA

plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	
--	--

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13. Climate Action Target: 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Data / Parameter: (as in monitoring plan of PDD):	N _{p,y} Project technologies credited (units)
Measuring frequency/Time Interval:	Continuous
Reported value & Unit:	303,298
Verified Source of Data	Yes, the parameter was cross-checked by the verification team as per GS 5642 - 16 AUGUST 2023 GS5642 Ex Post ER calculations v3.0" /02/ and by reviewing the Burn's database /06/. In the opinion of the verification team, the approach used for the calculation of the parameter is appropriate as well conservative.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, refer assessment above.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	N/A
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 13: Climate Action Target: 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
Data / Parameter: (as in monitoring plan of PDD):	LE _{p,y} Leakage in project scenario p during year y
Measuring frequency/Time Interval:	Every two years
Reported value & Unit:	0, tCO ₂ e /year
Verified Source of Data	The leakage was determined in the last KT for the project. Therefore, during this period, the leakage was not assessed. From the surveys during the previous monitoring, as verified by the VVB /B03/ and approved by GS /B03/, it was established that the leakage for this project is zero.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, refer assessment above.
Assessment of details of monitoring equipment, its specification and calibration	N/A

as per the requirements of registered PDD:	
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 1: (No poverty) End poverty in all its forms everywhere Monetary savings related to the purchase of charcoal in the project scenario
Data / Parameter: (as in monitoring plan of PDD):	Perceived Air quality
Measuring frequency/Time Interval:	Biennial
Reported value & Unit:	USD 68.61 Monetary savings based on fuel savings and prevailing fuel cost
Verified Source of Data	Based on a review of the provided documents and acceptance sampling, the verification team confirms and crosschecks during a site visit that the value/result of this parameter is correct and appropriate. The frequency as well as target value of the parameter is deemed appropriate.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, refer assessment above.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 3: (Good Health and Wellbeing) Ensure healthy lives and promote well-being for all at all ages.
Data / Parameter: (as in monitoring plan of PDD):	Perceived Air quality
Measuring frequency/Time Interval:	Biennial
Reported value & Unit:	95.63%
Verified Source of Data	Based on a review of the provided documents and acceptance sampling, the verification team confirms and crosschecks during a site visit that the value/result of this parameter is correct and appropriate. The frequency as well as target value of the parameter is deemed appropriate.
Is measuring and reporting frequency in	Yes, refer assessment above.

accordance with the monitoring plan and monitoring methodology? (Yes / No)	
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 4: (Quality Education) Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university.
Data / Parameter: (as in monitoring plan of PDD):	Number of people trained/ year
Measuring frequency/Time Interval:	Annual
Reported value & Unit:	37
Verified Source of Data	Based on a review of the provided documents/13/and through interviews with enumerators, the verification team confirms that the value/result of this parameter is correct and appropriate. The frequency as well as target value of the parameter is deemed appropriate.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Refer assessment above
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 5: (Gender Equality) Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household
Data / Parameter: (as in monitoring plan of PDD):	The average number of minutes saved while cooking in project scenario (user estimate of comparative cooking time in baseline to project scenario)

Measuring frequency/Time Interval:	Annual
Reported value & Unit:	83 Minutes
Verified Source of Data	Based on a review of the provided documents and acceptance sampling, the verification team confirms and crosschecks during a site visit that the value/result of this parameter is correct and appropriate. The frequency as well as target value of the parameter is deemed appropriate.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Refer assessment above
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 7: (Affordable and Clean Energy) Ensure universal access to affordable, reliable and modern energy services
Data / Parameter: (as in monitoring plan of PDD):	Number of sold/distributed ICS in use
Measuring frequency/Time Interval:	Annual
Reported value & Unit:	245,345 The usage rate is 66.39%
Verified Source of Data	Based on a review of the provided documents (Project database & supporting files) and calculation, the verification team confirms that the value/result of this parameter is correct and appropriate. The frequency as well as target value of the parameter is deemed appropriate.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	This value is calculated by Multiplying the Total Number of stoves assumed to be distributed in the Project over the Crediting Period by the Usage rate per year
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure the correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	SDG 8: (Decent Work and Economic Growth) Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
Data / Parameter: (as in monitoring plan of PDD):	Average hourly earnings of female and male employees, by occupation, age and persons with disabilities
Measuring frequency/Time Interval:	Annual
Reported value & Unit:	25
Verified Source of Data	Yes, the verification team has cross-checked the Project records Employee list, and contracts/payment slips/05/ to confirm the average salary as well the numbers. The average salary is confirmed to be above the minimum wage requirements of Kenya and thus acceptable to the verification team.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Refer assessment above
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	Goal 13. Take urgent action to combat climate change and its impacts
Data / Parameter: (as in monitoring plan of PDD):	Number of people/households with access to the energy efficient cook stoves and the usage rates of efficient cook stoves.
Measuring frequency/Time Interval:	Annual
Reported value & Unit:	The project has been selling stoves in Kenya since its inception and currently, there are 367,288 active households who have access to the stove within the period of monitoring. However, by adjusting with usage rate, the number of stoves was reduced to 303,298 and this is the number that claims emission reductions. The weighted average usage rate for the project is 66.39%.
Verified Source of Data	Verification team cross checked Stove database records and surveys and confirms that total 367,288 households are using improved cookstoves for the current monitoring period. /02/
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Refer assessment above
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.

QA/QC processes in place?	
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Relevant SDG Indicator	Goal 15. (Life on land) Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.
Data / Parameter: (as in monitoring plan of PDD):	Total amount of non-renewable fuel savings due to displacement or energy efficiency improvements of baseline technology
Measuring frequency/Time Interval:	Annual
Reported value & Unit:	381,830 Tons
Verified Source of Data	Verification team cross checked Project database, Monitoring & Usage Surveys for the current monitoring period and above calculated value Computed as a function of specific fuel savings for an individual technology multiplied by the total number of operational technologies (discounted for usage rate in the monitoring period) and the non-renewable Biomass fraction in Kenya which deemed to be appropriate.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Refer assessment above
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA