Verification report for GS4GG Programme of Activity

(Gold Standard for the Global Goals)

BASIC INFORMATION	
Title of the GS4GG Project	GS10789 GS11673 VPA 61 Efficient and Clean Cooking for households in Nigeria
GS ID of Project	GS11671
Version number of the verification and certification report	5.0
Completion date of the verification and certification report	26/02/2024
Monitoring period number and duration of this monitoring period	1st monitoring period Duration: 13/12/2021 to 08/06/2023 (inclusive of both days)
Version number of the monitoring report to which this report applies	6.0 Dated: 21/02/2024
Coordinating/managing entity (CME)	BURN Manufacturing Co.
Project Representative(s)	BURN Manufacturing Co.
Host Party	Federal Republic of Nigeria
Applied methodologies and standardized baselines	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), Version 3.1
Activity requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Mandatory sectoral scopes	Sectoral Scope 3: Energy Demand
Product requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Sustainable Development Goals Targeted	SDG Impact	Amounts Achieved	Units/Products
SDG:13 Climate Change	Emission Reductions	590,015	VERs (tCO2e)
SDG:1 End poverty in all its forms everywhere	Monetary savings related to the purchase charcoal	51%	Equivalent monetary savings in %

SDG:3 Ensure healthy lives and promote well-being for all at all ages	Perceived air quality	94.30%	Households in % perceiving improved air quality
SDG:4 Quality Education Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university	Number of people receiving skill development training	93	Number of people who participated in project training
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	Average time saving associated with cooking in the project scenario	79	Average time saved cooking for women in the project scenario (measured in minutes reported by end-user)
SDG:7 Ensure access to affordable, reliable, sustainable and modern energy for all	Number of sold/distributed	118,787	Number of sold/ distributed ICS in use
SDG:8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	No. of jobs created	304	Number of jobs created
SDG: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	Total non-renewable biomass saved	558,452.78	Tons of non-renewable biomass saved in the project scenario from continued use of project technologies

Name of the Gold Standard approved auditor (VVB)	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

The GS PoA titled "ECOA_BURN multi- country Clean Cooking Programme" involves the deployment of highly efficient improved cookstoves (ICS) reducing woody biomass consumption for households, institutions and Small and Medium Enterprises (SMEs) across different countries in Africa. Greenhouse gas (GHG) emission reductions achieved through saving of non- renewable biomass will result in carbon credits following GS certification rules and procedures. The revenues from sale of carbon credits are needed to:

a. Distribute improved cookstoves to a subsidized price affordable for end- users;
b. Scale up and expand the programme, thus reaching a wider range of end- users and generating more jobs;
c. Further invest in R&D, hence to produce high quality stoves at a lower cost;
d. Provide a reliable after- sales service;
e. Sensitize and raise awareness amongst end-users about benefits and how to use the improved cookstoves.

The current VPA 61 deploys highly efficient improved charcoal stoves (ICS), known as 'Jikokoa' reducing woody biomass consumption for urban and peri-urban households in the Federal Republic of Nigeria. There have been 131,985 ICS distributions/ sales in Federal Republic of Nigeria in accordance with VPA 61 with the first ICS distributed on 19/08/2021.

Cooking would have been conducted using inefficient, traditional charcoal stoves without the VPA. Project ICS reduces the usage of non-renewable biomass fuels and its associated GHG emissions.

The coordinating and managing entity (CME) of the PoA is BURN Manufacturing CO. who also act as the VPA implementer and the technology supplier for the VPA 61.

The VPA is implemented by BURN Manufacturing Co. (in the following 'BURN'), at the same time Coordinating and Managing Entity (CME) of the PoA, the biggest manufacturer of highly efficient improved cookstoves in Sub-Saharan Africa producing all its stoves in the first and only modern cookstove manufacturing facility in Kenya.

BURN implements the stoves in this VPA through B2C approach through direct distribution or through dedicated distributors in Nigeria.

The monitoring period covered under this verification is 13/12/2021 to 08/06/2023 (inclusive of both the dates). The total GHG emission reductions for the current monitoring period is 590,015 tCO_2e. Further, the SDG benefits achieved from the programme are listed in the table below in detail:

Sustainable Development Goals Targeted	SDG Impact	Amounts Achieved	Units/Products
SDG:13 Climate Change	Emission Reductions	590,015	VERs (tCO2e)
SDG:1 End poverty in all its forms everywhere	Monetary savings related to the purchase of charcoal	51%	Equivalent monetary savings in %

SDG:3 Ensure healthy lives and promote well-being for all at all ages	Perceived air quality	94.30%	Households in % perceiving improved air quality
SDG:4 Quality Education **Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university**	Number of people receiving skill development training	93	Number of people who participated in project training
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**	Average time saving associated with cooking in the project scenario	79	Average time saved cooking for women in the project scenario (measured in minutes reported by end-user)
SDG:7 Ensure access to affordable, reliable, sustainable and modern energy for all	Number of sold/distributed	118,787	Number of sold/ distributed ICS in use
SDG:8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	No. of jobs created	304	Number of local jobs created
SDG: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**	Total non-renewable biomass saved	558,452.78	Tons of non-renewable biomass saved in the project scenario from continued use of project technologies

Scope of verification

The verification is an independent and objective review for determination of the monitored reductions in GHG emissions by the VVB. The verification includes the implementation and operation of the PoA as set out in the registered PoA-DD/1/ & VPA-DD/2/ for VPA 61 in the current monitoring period.

The verification tests the data and assertions set out in the monitoring report prepared for this monitoring period, and it is based on the review of the following:

(i) The approved methodology TPDDTEC – "Technologies and Practices to Displace Decentralized Thermal Energy Consumptions, Version 3.1 /6/
(ii) The registered PoA-DD/1/ & registered VPA-DD/2/ and monitoring plan/3/
(iii) 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
(iv) GS4GG requirements
(v) The CDM Validation and Verification Standard (VVS) version 3.0/32/ and the CDM Project Standard (PS) version 3.0/31/

(vi) 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 the 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 GS4GG, as appropriate to the PoA. 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 GS4GG Requirements, which includes the following steps:

a) Contract with CME and appointment of verification team and technical review team (refer Section B.1 and B.2 of this report)
b) Desk review (refer Section D.1 of this report) of Monitoring Report /4/ and corresponding ER sheet /5/ by verification team and onsite audit (including sampling approach (refer Section D.4 of this report) to be applied)
c) Onsite audit (refer Section D.2 of this report) by verification team consistent of Team Leader and all Technical Experts, as a minimum/13/
d) Follow up activities e.g., interviews (refer Section D.3 of this report)
e) Reporting and closure of findings (CARs/CLs/FARs) and preparation of draft verification report (refer Section D.5 of this report)
f) Independent technical review (refer Section B.2 of this report) of the draft verification report and final/revised documentation (e.g., Monitoring Report, corresponding ER sheet and evidences)
g) Reporting and closure of TR comments/findings (refer Section D.5 of this report) (CARs/CLs/FARs) and final approval for the decision made (refer Section G and H of this report).
h) Issuance of final verification report to contracted CME (or authorized representatives) and submission of request for issuance, as appropriate.

Verification Conclusion

Based on the outcome of the verification process of VPA 61 "Efficient and Clean Cooking for households in Nigeria" of GS PoA "ECOA_BURN multi-country Clean Cooking Programme", for the monitoring period 13/12/2021 – 08/06/2023 (inclusive of both the dates), we confirm that the implementation of referenced registered PoA and its VPA 61 is complying with applicable CDM and GS4GG rules and regulations as stated in the Monitoring Report (final) Version 6.0, dated 21/02/2024/4/. The GHG emission reductions were calculated in line with the approved baseline and monitoring methodologies TPDDTEC – "Technologies and Practices to Displace Decentralized Thermal Energy Consumptions, Version 3.1"/6/ and the monitoring plan contained in the registered PoA-DD/1/ and VPA-DD/2/.

Earthood Services Private Limited (hereafter referred as "Earthood") is able to certify that the emission reductions from the VPA 61 (GS 11671) "Efficient and Clean Cooking for households in the Nigeria" of registered PoA (GS 10789) "ECOA_BURN multi-country Clean Cooking Programme" during the period 13/12/2021–08/06/2023 (inclusive of both the dates) amounts to 590,015 tCO_2e. Therefore, this is being submitted for request for issuance, as per GS4GG and UNFCCC procedures.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

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	On-site inspection	Interviews	Verification findings
1.	Team Leader (old)	IR	Jain	Arohi	Central Office	Y	Y	Y	Y
2.	Team Leader (new)	IR	Singh	Ranjan	Central Office	Y	N	N	Y
3.	GS Approved Auditor	IR	Guleria	Shifali	Central Office	Y	N	N	Y
4.	Verifier	IR	Jain	Arohi	Central office	Y	Y	Y	Y
5.	TA Expert (TA3.1)	IR	Jain	Arohi	Central office	Y	Y	Y	Y
6.	Local Expert	ER	Luka	Kumden Nanbal	Central office	N	Y	Y	N

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 VVB or outsourced entity)
1.	Technical reviewer	IR	Garg	Shreya	Central Office
2.	Technical Expert (TA 3.1)	IR	Garg	Shreya	Central Office
3.	Approver	IR	Singh	Kaviraj	Central office

GS4GG states "Unless otherwise stated (for example in an applied Methodology or Product Requirements), the same VVB may undertake Validation and Verification of a given Project" in the Para 5.1.28 of the core document Principles & requirements dated. 23/10/2019. With reference to the statement made by GS4GG. Therefore, the same team has conducted the combined Validation and Verification for the VPA 61.

As per paragraph 2.2 of the RULE UPDATE: Validation and Verification by Same VVB (RU 2020 PR – PR V1.2), "The requirement to have different audit teams does not apply to combined Design Certification with first verification and performance review for a given project (paragraph 5.1.53, Principles and Requirements V1.2, p 28). The same audit team may perform both validation and verification for combined Design Certification and first performance certification for a given project".

SECTION C. Application of materiality in conducting the verification

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.	Erroneous transfer of information from documented records (POs, sales records, etc.) to ER sheet/database.	Low	The documents also undergo regular internal checks to ensure the accuracy of data entry.	The records are checked on a sampling basis such that the information verified from database has low uncertainty within acceptable limits and is substantiated by onsite audit observations/13/.
2.	Error in applying the formulae in the emission reduction calculation sheet	Low	The calculation method has been prescribed in the applied methodologies and further detailed in the registered PoA-DD. There isn't any complex equation involved in the ER calculations. Also, the internal check ensures that such errors are identified in advance.	The emission reduction calculation sheet/5/ has been reviewed in detail by the assessment team. Each step for the calculation has been thoroughly checked to confirm the final numbers as well as the steps involved both computationally as well as, in accordance with the methodological requirement.

C.2. Consideration of materiality in conducting the verification

All errors were individual errors and no extrapolation of errors in the final calculation of ERs was required. The verification team confirms that the final ERs/5/ are free from material errors with a reasonable level of assurance.

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 the assessment team using dedicated protocols (checklists). The assessment team cross checks the information provided in the documents (MR)/4/ and information from sources other than those used, if available, and also conducts independent background investigations. Earthood conducted a desk review as under:

1. A review of the data and information presented to verify their completeness.
2. A review of the monitoring plan (as described in VPA-DD) /2/, the monitoring methodology including applicable tool(s) and, where applicable/6/, the applied standardized baseline, paying particular attention to the frequency of measurements, and the quality assurance and quality control procedures
3. A review of calculations and assumptions made in determining the GHG data and emission reductions/5/;
4. 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

The list of documents reviewed during the verification is provided under appendix 3 of this report.

D.2. On-site inspection

Duration of on-site inspection				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
	• Opening Meeting: Introduction, scope and objective of work, roles and responsibilities of audit team. • Parameter fixed Ex-ante and Baseline emissions, Project emissions and Leakage calculation • Project boundary and emission sources included in the project boundary • Choice and applicability of baseline methodology(ies) • Project Activity (Technology, Location and Implementation) • Monitoring plan (feasibility of monitoring arrangements described in PDD, QA/QC procedures, responsibility of implementation of monitoring plan, data recording & storage procedures) • Operational lifetime of the project activity, Start date of the project activity, Crediting period • Environmental impacts and need of EIA • Local Stakeholder Consultation process, comments received.	Federal Republic of Nigeria	24/08/2023-26/08/2023	Arohi Jain, Kumden Nanbal Luka (LE)

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	First name	Last name	Affiliation			
Interview of the Field Officers of CME						
01	Nathan	Gachugi	Head of Carbon Operations-Africa- BURN	24/08/2023-26/08/2023	VPA implementation, ER Sheet calculations, Monitoring procedures, Monitoring surveys, Trainings, Cost charged for project ICS, Discussion on on-site observations etc.	Arohi Jain, and Kumden Nanbal Luka (LE)
02	Natasha	Otolo	Senior Carbon Manager-BURN			
03	Chris	McKinney	CCO- BURN			
04	Mark	Connor	Commercial Director-BURN			
05	Laura	Toledano	BURN Project Manager-			

			Carbon			
06	Etulan	Ikpoki	Country Manager-BURN Nigeria			
07	Yomi	Jegede	Regional Field Operations Director-BURN Nigeria			
08	Folasayo	Fatunmbi	HR officer-BURN Nigeria			
09	Abubakar	Busari	BURN			
10	Obadare	Opeyemi	Burn Enumerator			
Project Monitoring Survey Responses						
1.	Abdullahi	Oluru	End-user of ICS	24/08/2023 - 26/08/2023	The range and extent of questions asked during the survey is presented in detail in the ensuing sections in section D.3.1	Arohi Jain, Kumden Nanbal Luka (LE)
2.	Atolagbe	Mikail	End-user of ICS			
3.	Yusuf	Abubarkar Ozomoye	End-user of ICS			
4.	Afolabi	Rukayat	End-user of ICS			
5.	Abdulazeez	Abdulganiyu	End-user of ICS			
6.	Babatunde	Isaac	End-user of ICS			
7.	Omobolaji	Ishaq	End-user of ICS			
8.	Tochukwu	Okonkwo	End-user of ICS			
9.	Olanike	Rukayat	End-user of ICS			
10.	Isaac	Olorundare Naolu	End-user of ICS			
11.	Ruth	Mudi	End-user of ICS			

D.3.1. Type of questions asked to end-user by the Verification Team members

The respondents in the Project Monitoring Survey were asked about their demographics as follows, in order to establish their identities stated in the survey conducted earlier by the PD/CME as mentioned in MR/4/ and survey sheets.

1. Name
2. Address with zip code
3. Date of Birth
4. Phone Number

No.	Questions asked by Team member as part of Project Monitoring Survey
1.	What is the Serial No of the Cookstove you received?
2.	Do you recall being visited by BURN enumerators about the use of the Jikokoa stove? (If yes, date/ year of survey)
3.	How many BURN Jikokoa stoves do you own that are in use for cooking food in your household?
4.	Any other ICS received from other CME(s)? If yes, name of CME).
5.	Is the Jikokoa in use/ operational?
6.	Is the baseline/ old stove still in usage?
7.	Fuel used in project stove (BURN Jikokoa)?
8.	Source of the fuel (eg: biomass or charcoal) (nearby area/ forest/ local market/etc.)?
9.	Any smoke reduction?
10.	Any difference in cooking between rainy season and dry season?
11.	Any idea about to get in touch with BURN in case you need to be assisted on the use of the stove? E.g. phone number, email or location of the BURN office near you?
12.	How much did you pay for the project ICS?
13.	Are you aware about the carbon rights associated with the usage of project ICS and their transfer to BURN?
14.	Any other remarks (less fuel consumption, bigger stove etc.)
15.	Users were also asked how they got benefitted from the installation of project stove; for example: reduction in the smoke level or indoor air pollution, Price of fuel, efficient cooking (fuel usage) & effect of season on fuel source and type. This covers the VVB's assessment on safeguarding principles, SDG assessment and stakeholder inclusivity.

All the end-users reported that the product is working satisfactorily, and they feel that there has been an improvement in the indoor air quality. All the end users also reported that they are aware of the grievance mechanism. While no adverse or negative responses were received regards the usage or convenience of use of stoves, some responded gave suggestions like having a larger project stove which can take two pots and increase the production of project stoves.

D.4. Sampling approach

CME's Sampling Approach

CME will follow sampling procedures given in Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 3.1/6/ for determining the sample size of each parameter. A confidence precision of 90/30 will be ensured by CME for meeting the annual/biennial monitoring criteria. The sampling approach undertaken by CME is duly explained under section B.7.2 of the VPA-DDs/2/, which has been assessed by the verification team and found to be correct and in-line to the TPDDTEC v3.1/6/.

VVB's Sampling Approach

The Standards for Sampling and surveys for CDM project activities and programme of activities (Version 9.0) /13/ states under paragraph 28 that "When the project participants or the coordinating/managing entity have applied a sampling approach, the DOE may apply acceptance sampling as described in the steps indicated in paragraphs 29- 38 below as part of validation/verification activities". The verification team has conducted acceptance sampling for the project scenario consumption of the fuel with the help of project monitoring survey in line with paragraph 30 and 31 of the sampling standard version 9.0.

The verification team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgement and guidance in the Standard 'Sampling and surveys for CDM project activities and programme of activities, Version 9.0' /25/ Para 30:

- The proportion of discrepancies between the CME's data and verification team's (field inspection results) data that can be considered acceptable. This is referred to as the AQL (Acceptable Quality Level): 0.5% was considered in this validation.
- The proportion of discrepancies between the CME's data and validation team's (field or remote inspection results) data that would be considered unacceptable. This is the UQL (Unacceptable Quality Level): 20% was considered in this validation.
- The producer risk and consumer risk of 10% and 20% respectively were considered

The verification team selected random sample of CME's sampled records to check the acceptability (or otherwise) of the data for each such record with CME's sample records and determined if the CME's sample records meet the requirements.
The verification team selected the sample size as 11 households for the purpose of onsite inspection to check the acceptability of CME's sampling results or otherwise.

Sample Size: (Per region)

PoA Ref no.	AQL	UQL	Producer Risk	Consumer Risk	Sample Size; Min	Acceptance No.
GS 10789	0.5%	20%	10%	20%	11	0

The Verification team covered a total of 11 samples and observed a few typographical errors related to erroneous reporting of data from the project monitoring survey forms into the project survey calculation sheet. It has now been ensured that all the data is now consistent between the project survey forms and SDG calculation sheet. There were no material errors identified that might have resulted in the overestimation of the SDG impacts.

D.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
General			
Compliance of the monitoring report with the monitoring report form	-	-	-
Remaining forward action requests from previous verification	-	-	
Specific-case VPA(s) considered for verification and covered in this report	-	-	-
Programme of activities			
Compliance of the programme implementation with the registered PoA-DD	-	-	-
Implementation and operation of the management system	-	-	-
Post-registration changes			
• Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	-	-	-
• Corrections	-	-	-
• Inclusion of a monitoring plan in a registered PoA-DD (including its generic VPA-DD(s))	-	-	-
• Permanent changes to the monitoring plan as described in the registered PoA-DD, applied methodology, or applied standardized baseline	-	-	-
• Changes to the programme design of the registered PoA-DD (including corresponding changes to project design of the generic VPA-DD(s)) and updates to the eligibility criteria for inclusion of specific-case VPAs in the PoA	-	-	-
• Types of changes specific to afforestation and reforestation activities	-	-	-
Voluntary project activities			

Compliance of the VPA implementation with the included VPA design document	CL 01	-	-
Description of Project activity	-	-	-
Project Boundary	-	-	-
Post-registration changes	-	-	-
• Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline	-	-	-
• Corrections	-	-	-
• Changes to the start date of the crediting period	-	-	-
• Inclusion of a monitoring plan to an included VPA-DD	-	-	-
• Permanent changes to the monitoring plan as described in the included VPA-DD, applied methodology, or applied standardized baseline	-	-	-
• Changes to the programme design of the included VPA-DD	-	-	-
• Types of changes specific to afforestation and reforestation component project activities	-	-	-
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	-	-	-
Compliance of monitoring activities with the registered monitoring plan	CL 03	-	-
• Data and parameters fixed ex ante or at renewal of crediting period	-	CAR 01 CAR 02	-
• Data and parameters monitored	-	CAR 03	
• Implementation of sampling plan	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	-	CAR 04	-
• Calculation of baseline GHG emissions or baseline net GHG removals by sinks	-	-	-
• Calculation of project GHG emissions or actual net GHG removals by sinks	-	-	-
• Calculation of leakage GHG emissions	-	-	-
• Summary of calculation of GHG emission reductions or net GHG removals by sinks	-	-	-
• Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included specific-case VPA	-	-	-
• Remarks on difference from estimated value in registered VPA-DD		-	-
Assessment of reported sustainable development co-benefits	CL 02	-	-

Others (On-site visit)	CL 04	-	-
Total	**04**	**04**	**00**

SECTION E. Verification findings

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

Means of verification	VVB checked from the Gold Standard website that the prescribed form has been used for preparing the Monitoring Report/4/. The CME used the Gold Standards for Global Goals latest MR template version 1.1/4.1/ available on the GS webpage and all the details were filled as per the MR template guidelines/4.1/.
Findings	No findings raised.
Conclusion	The verification team confirms the compliance of the monitoring report with the latest version of the GS monitoring report template and the instructions therein for filling out the form.

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

None.

E.3. VPAs considered for verification and covered in this report

Title and GS reference number of the VPA included in the PoA as of at the end of this monitoring period	Is the VPA considered for this verification? (yes/no)	Version of the VPA-DD/ PoA-DD	Confirmation that a request for issuance including the VPA has been published for the previous monitoring period (Y/N)
GS10789 GS11673 VPA 61: Efficient and Clean Cooking for households in the Nigeria (GS11671)	Yes	Version 4.0; Version 4.1	NA, as this is the first monitoring period

E.4. Programme of activities

E.4.1. Compliance of the programme implementation with the registered programme design document

Means of verification	The purpose of the VPA is distribution of ICS (Jikokoa) in the urban and peri-urban households of Federal Republic of Nigeria. The VPA implementor is BURN Manufacturing Co. (BURN). The objective of BURN is to finance and create high-impact climate mitigation projects. In Nigeria, 131,985 ICS have been delivered through the VPA till the end of current monitoring period, and all of them have been recorded in the monitoring database. The first ICS was distributed under VPA 61 on 19/08/2021 which marks the start date of the VPA. The VPA is a retroactive VPA since the start date of the VPA is after the local stakeholder consultation which was held on 01/08/2022, 03/08/2022 and 05/08/2022. The project ICS more effectively burns woody biomass, lowering greenhouse gas (GHG) emissions and particle emissions (PM), and thereby improving indoor air quality in project households.

Since, the ICS has better thermal efficiency than traditional/baseline stoves, it requires less non-renewable biomass fuel to achieve equivalent thermal energy demands.
In the absence of the VPA, traditional charcoal stoves would have been utilised for cooking, which would have been inefficient. By replacing these with project ICS, non-renewable biomass fuel usage and GHG emissions are reduced.

The present VPA covers the Federal Republic of Nigeria: 9°04'39.90"North, 8°40'38.84"East.
All of the deployed systems fulfil the VPA DD/2/ eligibility standards. The evaluation team certifies that cookstoves were distributed solely in Federal Republic of Nigeria (project boundary), and hence the geographical borders of the implemented VPA correspond to the acceptable VPA-DD /2/.

The technical specifications of the ICS are mentioned in the following table:

Stove Manufacturer	BURN
Stove Model	Jikokoa G3.5
Stove Type	Charcoal Stove

Materials

Stove Body	CRCA Carbon Steel painted high gloss black epoxy powder coat
Pot Rest	Stainless Steel
Burning Chamber	Stainless Steel
Ash Tray	Aluzinc
Feet	Stainless Steel

Measurements

Height	cm	24.4 cm
Diameter (stove top)	cm	26.0 cm
Weight	kg	4 kg
Fuel Chamber Volume	cm^3	954 cm^3
Packaging Dimensions	cm	29.0 L x 28.5 W x 25.1 H

WBT Results

Parameter	Unit	Value

High power thermal efficiency (average of cold start and hot start)	%	48.1%
Firepower	kW	2.05
Boil Time	minutes	27.72

Lifetime

Warranty	2 years
Estimated Lifetime[3]	7 to 10 years

Stove Manufacturer	BURN
Stove Model	Jikokoa Xtra (G4)
Stove Type	Charcoal Stove

Materials

Stove Body	CRCA Carbon Steel painted high gloss black epoxy powder coat
Pot Rest	Stainless Steel & Cast Iron
Burning Chamber	Stainless Steel
Ash Tray	Aluzinc
Feet	Aluzinc

Height	cm	27.0 cm
Diameter (stove top)	cm	30.2 cm
Weight	kg	5.5 kg
Fuel Chamber Volume	cm^3	1030 cm^3
Packaging Dimensions	cm	30.2 L x 30.5 W x 27.5 H

WBT Results

Parameter	Unit	Value
High power thermal efficiency (average of cold start and hot start)	%	44.6%
Firepower	kW	2.21
Boil Time	minutes	27.96

Lifetime

Warranty	2 years
Estimated Lifetime[1]	7 to 10 years

Stove Manufacturer	BURN
Stove Model	Ecoa Char MMJ[2]
Stove Type	Charcoal Stove

Materials

Stove Body	CRCA Carbon Steel, painted hammer tone black epoxy powder coat
Pot Rest	Stainless Steel
Burning Chamber	Stainless Steel
Ash Tray	Aluzinc
Feet	Aluzinc
Handles	Stainless Steel and Polypropylene plastic[3]

Measurements

Height	cm	22.8 cm
Diameter (stove top)	cm	26.7 cm
Weight	kg	3.0 kg
Fuel Chamber Volume	cm^3	1,152 cm^3
Packaging	cm	29.5 L x 29.5 W x 24.0 H9

[1] The lifetime of the Jikokoa Xtra may go beyond the indicated lifetime. Hence, depending on the usage rate of the stoves, stoves will be either removed from the database after the end of its lifetime and not credited anymore or remain in the database for crediting until the moment a significant drop in usage rate is observed. As an alternative, worn out ICS may be replaced by newly distributed stoves. Manufacturer's declaration about the ICS lifetime has beensubmitted to the validating DOE.

2 The name of the stove model is still subject to change.
3 The name of the stove model is still subject to change.

Dimensions		

WBT Results

Parameter	Unit	Value
High power thermal efficiency (average of cold start and hot start)	%	49.29%
Firepower	kW	2.2
Boil Time	minutes	25.13

Lifetime

Warranty	1 year
Estimated Lifetime[4]	7 to 10 years

Furthermore, the assessment team verifies that:

- The VPA is implemented within the border of the VPA as defined in the registered PoA-DD/1/, based on a review of distribution records by CME/7/, onsite observations/13/, and interviews performed during the onsite inspection /13/.
- All physical aspects of the VPA recommended in the updated acceptable VPA-DD/2/ have been implemented.
- The information (including data and variables) in the MR/4/ is determined to be consistent with the specifics in the approved VPA-DD/2/. The verification team determined that the project description included in MR was comprehensive and correct, and that it corresponded to the updated acceptable VPA-DD/2/.

Grievance Mechanism

i. **Phone Number**: End users can call the dedicated phone number where they can communicate their comments or complaints to BURN'S aftersales service unit.

ii. **Logbook**: The stakeholders were pleased to have an input book opened at BURN office in Nigeria. Complaints or any other concerns can be stated and will be filed directly at the head office.

iii. **Internet Email Access**

The grievance mechanism involves recording the complaints from the beneficiaries by the field staffs to the household on a regular basis in a logbook/12/ which is maintained at the registered office in Nigeria. During the current monitoring period, no grievances was received which was verified upon checking the logbook/12/ and email records onsite.

[4] The lifetime of the Ecoa Char MMJ may go beyond the indicated lifetime. Hence, depending on the usage rate of the stoves, stoves will be either removed from the database after the end of its lifetime and not credited anymore or remain in the database for crediting until the moment a significant drop in usage rate is observed. As an alternative, worn out ICS may be replaced by newly distributed stoves. Manufacturer's declaration about the ICS lifetime has been submitted to the validating VVB.

The year wise distribution as verified by the VVB from the ER Sheet and distribution database is as follows:

Year of Distribution	Distributed stoves	VVB Assessment
2021	6,289	The VVB has verified the values from the Distribution Database/7/ and the values are found to be consistent in the MR/4/.
2022	64,199	
2023	61,497	
Total	**131,985**	

There are total 131,985 ICS distributed under the VPA till the end of the current crediting period as verified by the VVB from the distribution database.

Findings

No findings raised.

Conclusion

The verification team can confirm that all physical features (technology, project equipment, and monitoring and metering equipment) of the registered VPA were in place and that the CME operated the project activity in accordance with the VPA-DD/2/ and VPA-Inclusion Report/3/ during the current monitoring period and based on the information verified through the onsite audit and interviews/13/.

During the current monitoring period, emissions were reduced by 608,409 tCO2e. The following values SDGs were attained in this monitoring period by VPA:

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/Products
1 End poverty in all its forms everywhere	Monetary savings related to the purchase of charcoal	51%	Equivalent Monetary savings in %.
3 Ensure healthy lives and promote well-being for all at all ages	Perceived air quality	94.30%	Households in % perceiving improved air quality
4 (Quality Education) Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary	Number of people receiving skill development training	93	Number of people who participated in project training

education, including university			
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	Average time saving associated with cooking in the project scenario	79	Average time saved cooking for women in the project scenario (measured in minutes reported by end-user)
7 Ensure access to affordable, reliable, sustainable, and modern energy for all	Number of sold/distributed	118,787	Number of sold/ distributed ICS in use
8 Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all	Number of jobs created	304	No. of local jobs created
13 Climate	Emission Reductions	590,015	VERs (tCO2e)
15 (Life on land) Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase	Total non-renewable biomass saved	558,452.78	Tons of non-renewable biomass saved in the project scenario from continued use of project technologies

	afforestation and reforestation globally			

E.4.2. Implementation and operation of the management system

Means of verification

BURN offered stoves directly to end users or through dedicated distributors. The stove distribution and data gathering processes were explained to distributors.

The CME runs and manages an electronic data management system that keeps and tracks information on all efficient cooking methods covered by the VPA. The following information will be recorded in the database at a minimum using a cloud-based web platform (Kobo Collect):

- Unique serial number (USN) of the ICS
- Date of shipment to distributor/ retailer
- Name of distributor/ retailer
- Quantity of ICS distributed
- Geographic area (state) of distributor/ retailer
- Model type of ICS

Furthermore, the distribution database will include end-user contact information (name, state, mobile number, or national ID number) from at least ten times the survey and field test sample size (including usage surveys for each age of product) to ensure an adequate end-user pool from which random sampling can be applied. End-users must register their end-user details through SMS or phone call in order to claim the ICS warranty.

Each ICS's USN will be connected to a sales date (recorded during distribution) or shipment date in the sales database. Thus, for any monitoring period, the duration of time for which the stoves included in the emissions reduction estimates are deemed operational can be calculated. If, for example, a stove has been operational for 180 days, the full-year operating percent is 0.493 (=180/365 days). The stove will be counted as operational (= start crediting) from the next day following distribution or after a conservatively calculated period of time from the date of shipment. The sum of all appliances' operational fractions determines the equivalent full-time appliances for the monitoring period.

The USN has the following format comprising of 9 digits:

1st digit	2nd digit	3rd	4th	5th	6th	7th	8th	9th
Product ID	100000th	10000th	1000th	100th	10th	Random	Random	1st
ID	**S1**	**S2**	**S3**	**S4**	**S5**	**R1**	**R2**	**S6**

Each section on the USN will identify the product as follows:

- Product type: the first digit identifies the stove type (Jikokoa)
- Production number: S1 to S6 are digit slots for a sequential numbering ordered by time of production, allowing for 1 million unique serial numbers. For instance, the first stove off the line

would have "000000" for its S1-S6digits.

- Random digits: R1 and R2 are 2 random digits placed in slots 7 & 8, to make the USN unpredictable to outside parties

The USN during the initial implementation of the VPA was a 9-digit alphanumerical sequence in line with the registered PDD, which was subject to changes in the future implementation. Hence, 6-digit USN was also observed in the current monitoring period which is found to be acceptable by the VVB considering the uniqueness of the sequence and no duplicate entries were observed by the VVB.
The data for the system will be updated and modified as required to allow for optimal performance of each VPA implementation and monitoring. All data will be stored for at least two (2) years after the expiry of the crediting period.
The year wise distribution as verified by the VVB from the ER Sheet and distribution database is as follows:

Year of Distribution	Distributed stoves	VVB Assessment
2021	6,289	The VVB has verified the values from the Distribution Database/7/ and the values are found to be consistent in the MR/4/.
2022	64,199	
2023	61,497	
Total	**131,985**	

There are total 131,985 ICS distributed under the VPA till the end of the current crediting period as verified by the VVB from the distribution database.

Findings	CL 03 is raised and resolved.
Conclusion	The verification team assessed the management systems in place to implement the monitoring of the PoA. This included the roles and responsibilities, data collection, transfer and aggregation procedures, data storage and archiving for the monitoring system. The roles and responsibilities data collection transfer and aggregation procedures, data storage and archiving for the monitoring system have been provided in the MR/4/. The verification team confirms that the monitoring management system of the VPA and by extension PoA is in place with the responsibilities properly identified and established as per the revised approved PoA-DD/1/.

E.4.3. Post-registration changes

E.4.3.1. Corrections

Not Applicable

E.4.3.2. Inclusion of a monitoring plan

Not Applicable

E.4.3.3. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

Not Applicable

E.4.3.4. Changes to the programme design

Not Applicable

E.4.3.5. Addition of CPA inclusion template

Not Applicable

E.4.3.6. Change of coordination/managing entity

Not Applicable

E.4.3.7. Changes specific to afforestation and reforestation activities

Not Applicable

E.5. Voluntary project activity

E.5.1. Compliance of the VPA implementation with the included VPA design document

Means of verification

The reporting for this issuance has been done technology-wise, thus section E.5 shall be dealing with distribution of ICS and its compliance with PoA-DD/1/ and applicable standard.

BURN is the Coordinating and Managing Entity (CME) and VPA Implementer for the implementation of VPA.

The project has been implemented as described in the VPA-DD. There are no changes from the project design.

This verification report covers the monitoring period from 13/12/2021 to 08/06/2023 (inclusive of both the dates). An overview of all field project activities is provided in the table below as verified in the validation report/3/:

Date	Activity
19/08/2021	Project start date (Start of stove distribution)
13/12/2021	Start of project crediting period
08/06/2023-14/08/2023	Usage/ Monitoring Survey
13/06/2023-17/07/2023	Project KPTs
28/11/2022-10/12/2022	Baseline KPT Survey

The project ICS were distributed/sold in Nigeria, which is consistent with the description given in the included VPA DD/2/. By the end of the current monitoring period requesting issuance, a total of 131,985 ICS were disseminated under this VPA, which is within the estimated quantity of 144,522 ICSs of the VPA-DD/2/ for comparable year of distribution. It has been checked by the verification team that the VPA is way below the threshold of 150 kW per unit (thermal), however, as per VPA-DD the scale of the VPA is defined as large scale for ICS. The stoves are distributed and managed by CME. The stoves are sold to end users and the sales data is collected by means of sales receipts at the time of sale to the end-user.

VVB has conducted an onsite audit for the VPA and each of the interviewed end users had only one ICS. Further, the monitoring survey provided by the PP was reviewed by the VVB. No end users were observed with more than 1 ICS. Hence, stove stacking was not observed in the VPA.

	VVB has reviewed the lag time calculation sheet/39/ and the start date calculation sheet/40/ for the VPA. They are found to be acceptable. Hence, the VVB confirms that the start date of the project activity is correctly identified and mentioned in the MR.
Findings	No findings raised.
Conclusion	The verification team is of the opinion that physical features of the VPA have been implemented in accordance with the VPA-DD/2/. • It is also confirmed, through the review of the supporting documentation, that physical features of the component VPA have been implemented in accordance with the VPA-DD /2/. • The VPA was also found to be completely operational in line with the VPA-DD /2/. • The information provided in the relevant sections of the monitoring report are appropriately describe the implementation and operational status of the PoA.

E.5.2. Post-Design Certification changes

E.5.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

Not Applicable

E.5.2.2. Corrections

Not Applicable

E.5.2.3. Changes to the start-date of the crediting period

Not Applicable

E.5.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

Not Applicable as this is the first monitoring period of the VPA

E.5.2.5. Changes to project design of approved project

There are no changes made during this monitoring period.

E.5.3. Compliance of the registered monitoring plan with applied methodologies and standardized baselines

Means of verification	The monitoring plan contained in the VPA-DD /2/ was reviewed in relation to the monitoring requirements of the applied methodology, TPDDTEC, version 3.1 /6/, as well as the PoA DD /1/, bearing in mind the technology involved. In light of the review conducted, it was found that the monitoring plan in the VPA-DD/2/ contains all the required parameters to be monitored in the context of the VPA design and description and allows determination of emission reductions according to the PoA DD/1/ and applied methodology/6/.
Findings	No findings raised.
Conclusion	The monitoring plan is in line with the approved methodology, Gold Standard Simplified Methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 3.1 /6/, that is included in the registered PoA DD/1/ and VPA-DD/2/. The monitoring plan is in accordance with the applied methodology /6/ that is included in the VPA-DD/2/.

E.5.4. Compliance of monitoring activities with the registered monitoring plan

E.5.4.1. Data and parameters fixed ex ante or at renewal of crediting period

SDG13-$P_{b,y}$: Quantity of charcoal that is consumed in baseline scenario b during year y

Means of verification	**Quantity Pb,y – Tonnes per household per year** The value of this parameter was cross checked with the baseline kitchen performance test (KPT). The calculation steps and the attendant references in the excel sheet were checked. The sample mean of the daily consumption of charcoal is 3.8502 kg/HH/day which is a statistically determined value at 90/30 confidence interval/precision, derived based on the 3 consecutive days of charcoal consumption when the KPT was conducted. The standard deviation of the sample obtained is 0.59 kg from a revised sample size of 114. This effectively removes overestimation of fuel estimation in baseline by eliminating the outliers i.e., consumption exceeding 5.62kg in the household in the observational period of 3 consecutive days. The baseline fuel consumption was also confirmed by the VVB during the onsite audit where the households confirmed to consume 3-4 kg of charcoal per day where the average household size was 5-6 members and average number of meals cooked per day was 2-3. This was cross checked by the VVB from a published literature. It has been confirmed from the report that approximately 3-4 kg of charcoal is consumed by households per day. Hence, the value considered in the VPA 61 for baseline charcoal consumption is found to be acceptable by the VVB. This value is used in the baseline emission determination. The value verified is: 1.41 tonnes/households/year.
Findings	No findings were raised.
Conclusion	The value mentioned in the Monitoring Report/4/ and Emission Reduction Spreadsheet /5/ are consistent with the approach given in VPA-DD wherein it is recommended to establish baseline fuel usage for VPA at the time of verification/2/. Hence the applied value is correct and justified.

SDG13-$EF_{b,wood,CO2}$: CO2 emission factor arising from the use of fuel wood in baseline scenario, tCO_2/TJ

Means of verification	$EF_{b,wood,CO2}$ - The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, Chapter 2: Stationary Combustion, Table 2.5 - Default emission factors for stationary combustion in the residential and agriculture/forestry/fishing/fishing farms categories/14/. The mean value of the range of default IPCC values has been utilized. This value is used towards determination of baseline emissions. The verified value is: 112 tCO2e/TJ
Findings	No findings were raised
Conclusion	The value mentioned in the Monitoring Report /4/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13-$EF_{b,wood,non-CO2}$: Non-CO_2 emission factor arising from use of fuels in baseline scenario, tCO_2/TJ

Means of verification	$EF_{b,wood,non-CO2}$ – 2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table 2.9). This value is used for the determination of baseline emissions.

	The verified value is: 9.46 tCO2e/TJ (Fuelwood)
Findings	CAR 02 is raised and resolved.
Conclusion	The value mentioned in the Monitoring Report /4/ and Emission Reduction Spreadsheet /4/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13-$EF_{P,CO2}$: CO_2 emission factor arising from use of fuels in project scenario, tCO2/TJ

Means of verification	$EF_{p,CO2}$ – The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, Chapter 2: Stationary Combustion, Table 2.5 This value is used for the determination of project emissions. **The verified value is: 112 tCO2e/TJ**
Findings	No findings raised.
Conclusion	The value mentioned in the Monitoring Report /4/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13- $EF_{p,nonCO2}$: Non- CO_2 emission factor arising from use of fuels in project scenario, tCO2/TJ

Means of verification	**$EF_{p,nonCO2}$ –** 2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table 2.9). **The verified value is: 9.46tCO2e/TJ**
Findings	CAR 02 is raised and resolved.
Conclusion	The value mentioned in the Monitoring Report /4/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13-NCV_b: Net calorific value of charcoal fuel used in the baseline, TJ/ton

Means of verification	NCV_b - 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1: Introduction, Table 1.2 - Default net calorific values Default IPCC values for wood/wood waste are applied. This value is used for the determination of baseline emissions. **The verified value is: 0.0156 TJ/ton**
Findings	CAR 01 and CAR 02 were raised and resolved.
Conclusion	The value mentioned in the Monitoring Report /4/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13-NCV_p: Net calorific value of fuel used in the project, TJ/ton

Means of verification	NCV_p - 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1: Introduction, Table 1.2 - Default net calorific values This value is used for the determination of baseline emissions. **The verified value is: 0.0156 TJ/ton**
Findings	CAR 01 and CAR 02 were raised and resolved.
Conclusion	The value mentioned in the Monitoring Report /4/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13-$f_{NRB,i,y}$: Non- renewability status of woody biomass fuel in scenario i during year y, fraction

Means of verification	$f_{NRB,i,y}$ – Based on the study conducted by C4 EcoSolutions (Pty) Ltd. dated 22 January 2021. This value is used for the determination of baseline emissions. **The verified value is: 0.93**
Findings	CAR 02 was raised and resolved.
Conclusion	The value mentioned in the Monitoring Report /4/ and Emission Reduction Spreadsheet/5/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13-NCV_{LPG}: Net calorific value of the LPG used in project scenario, TJ/ton

Means of verification	NCV_{LPG} - 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1: Introduction, Table 1.2 - Default net calorific values This value is used for the determination of baseline emissions. **The verified value is: 0.0473 TJ/ton**
Findings	CAR 02 was raised and resolved.
Conclusion	The value mentioned in the Monitoring Report /4/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13- $EF_{LPG,CO2}$: CO2 emission factor arising from use of LPG in project scenario, tCO2/TJ

Means of verification	**$EF_{LPG,CO2}$ –** 2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table 2.2). **The verified value is: 63.1tCO2e/TJ**
Findings	CAR 02 was raised and resolved.
Conclusion	The value mentioned in the Monitoring Report /4/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13- Wood-to-charcoal conversion factor: Conversion factor for transforming fuel wood into charcoal, kg firewood/ kg charcoal

Means of verification	Wood to charcoal conversion factor– IPCC default value (https://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf) 9page 1.45). The verified value is: 6 kg firewood/ kg charcoal.
Findings	No findings raised.
Conclusion	The value mentioned in the Monitoring Report/4/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

E.5.4.2. Data and parameters monitored

SDG13-Quantity of fuel that is consumed in project scenario p during year y, $P_{p,y}$ in t/household/year

Relevant SDG Indicator	**SDG13: Climate Action**

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is measured and recorded at least once every two years (biennial)
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DD /2/
	Monitoring equipment	This value is derived statistically based on surveys in project scenario, adopting minimum 3 consecutive days of charcoal consumption by the sampled household.
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	This is statistically derived value whose computation is explained as follows: The 4 consecutive day consumption of the charcoal by the sampled household is calculated using 90/30 rule. The purpose of the calculation is to find the mean value of charcoal consumption which is as close to the population mean as possible. The calculation behind this was verified from the project KPT mentioned in the ER Sheet /5/. Since, for the project KPT, 90/30 confidence/ precision was followed and precision attained was 7%, the mean value was considered for ER calculation. The calculation steps, and the applicability with the methodology/6/ was ascertained and found that the value calculated was conservative. So, the computation are conservative and does not overestimate the charcoal consumption which in turns underestimates the emission reduction The samples drawn by the CME during this MP is 57 from the beneficiaries in project scenario and the value obtained is: 0.56 tonnes per household/year.
	If applicable, has the reported data been cross-checked with other available data?	Not applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy. At the outset of each research, the equipment used in KPT is calibrated. Section E.5.7 of this report discusses calibration information. Personnel in charge of carrying out KPT studies are properly trained to supervise data collection and identify any inaccuracies in reported statistics.

	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 1 to the CDM Project Standard?	Not Applicable
Findings	No findings raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology/6/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1/.	

SDG13-Usage rate in project scenario p during year y determined on a sampling basis, $U_{p,y}$, Fraction(or %)

Relevant SDG Indicator	**SDG13: Climate Action**	
Means of verification	**Criteria/Requirements**	**Assessment/Observation**
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DD /2/
	Monitoring equipment	Not applicable as this parameter is ascertained through surveys
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	This value is ascertained through annual surveys about the usage of the stoves in the project scenario. The value obtained for age group 0-1 is 97.66% and the value obtained for age group 1-2 is 96.67%. However, the value capped for this monitoring period is 90%. This value was accepted after checking the user habit survey results /9/provided by the CME. It is to be noted that BURN has a robust system to ensure that the end users are constantly in touch and at the same time engage the field staffs to ascertain the grievances and rectify them to ensure that the intended beneficiary does not drop off from the program owing to assimilation barrier experienced due to new technology adoption. To achieve a Good Practice utilization as per "GS Requirements and Guidelines: Usage rate Monitoring", rate of up to 90%, field team training, end-user training and follow-ups, and an awareness campaign are all

		necessary. Before distribution, sensitization seminars are organized to explain how the stove works, and each participant receives a guide along with the stove CME also have a call center that follows up on stove recipients' experiences with the stoves. In addition, the field team conducts continuing monitoring operations in the field to verify data quality is up to standard, which serves to encourage stove users to use the stoves and gives them the opportunity to raise questions about the stoves. This was further cross-checked with the desk review of documents and through interviews during the field visit.	
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Not Applicable as the data is based on surveys and interviews with the beneficiaries	
	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 1 to the CDM Project Standard?	Not Applicable	
Findings	No findings raised.		
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology/6/. The monitoring results were recorded consistently as per the frequency in the monitoring plan/2/.		

SDG13-Technologies in the monitoring Database for project scenario p through year y, $N_{p,y}$, Number

Relevant SDG Indicator	**SDG13: Climate Action**		
Means of verification	**Criteria/Requirements**	**Assessment/Observation**	
	Measuring /Reading /Recording frequency	This parameter is measured continuously	
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DD /2/	
	Monitoring equipment	BURN keeps records of all distributed ICS in an electronic database. The basic data recorded inn KoboCollect database	

		includes following information: • Unique serial number (USN) of the ICS • Date of shipment to distributor/ retailer • Name of distributor/seller • Quantity of ICS distributed • Geographic are (state) of distributor/ retailer • Model type of ICS Other than this, the distribution database will also contain end-user contact details (name, state, mobile number, or national ID number) of atleast 10 times the survey and field test sample size (including usage surveys for each age of product), to ensure an adequate end-user pool to which random sampling can be applied. To claim the ICS warranty, end-users must register their end-user details through SMS or call. The verified value of the parameter is 118,787.
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	The data is verified by checking the records of the KoboCollect cloud-based database excel spreadsheets download /8/
	If applicable, has the reported data been cross-checked with other available data?	Not applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
	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 1 to the CDM Project Standard?	Not Applicable
Findings	No findings raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology /6/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13-Leakage in project scenario p during year y, $LE_{p,y}$, tCO2e/year

Relevant SDG Indicator	**SDG13: Climate Action**

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	At least once every two years (biennial)
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DD /2/
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	The verified value in this monitoring period was assessed to be: 0 There are 5 ways in which the leakages can occur in this project activity i. The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project. ii. Non-project users who previously used lower emitting energy sources use the non-renewable biomass or fossil fuels saved under the project activity. iii. The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario. iv. The project population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating or by retaining some use of inefficient technology. v. By virtue of promotion and marketing of a new technology with high efficiency, the project stimulates substitution within households who commonly used a technology with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline. However, all the five conditions can be discounted as follows: i. The displaced baseline technology is the most common and easily available cooking method in the project area and most of households usually sale off the old stove as scrap metal or throw it away upon purchase of ICS. It is highly unlikely that displaced baseline technology is reused outside the project boundary. ii. Project users have to spend money for the charcoal. It can be excluded that the fuel saved by the project would be given for free by the project users and used by non-project users who previously used lower emitting energy sources

		iii. The project is too small that it would have significant impact on the NRB fraction. Besides, demand for charcoal in Nigeria is continuously rising. Since, alternative fuels (like LPG or electricity) are out of reach for many people. Hence, the share of NRB remains high and it will not have a leakage impact on other carbon projects in Nigeria. iv. The climate conditions for most of the areas in Nigeria do usually not require space or room heating. It is very unlikely that the charcoal ICS would be used for space or room heating. This can be confirmed through annual monitoring surveys v. The project's target group is households using charcoal. It is highly unlikely that households using electricity for cooking would use the project technology. Thus, leakage can be excluded. The calculation steps involved in the sampling method was cross checked and assessed and found to be correct.	
	If applicable, has the reported data been cross-checked with other available data?	Not applicable	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.	
	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 1 to the CDM Project Standard?	Not Applicable	
Findings	No findings raised.		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology /6/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

SDG1-Monetary savings related to the purchase of charcoal, Percentage

Relevant SDG Indicator	**SDG 1: End poverty in all its forms everywhere**	
Means of verification	**Criteria/Requirements**	**Assessment/Observation**

	Measuring /Reading /Recording frequency	This parameter is measured on annual basis
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DD /2/
	Monitoring equipment	Direct calculation based on results from the usage survey. The value achieved during this monitoring period is 51%. The value was determined through the usage/ monitoring surveys to check on the money spent for purchasing charcoal in the project scenario compared to the baseline scenario
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	The reduction in fuel consumption is verified from the usage survey conducted.
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
	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 1 to the CDM Project Standard?	Not Applicable
Findings	CL 02 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology /6/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG 3-Perceived Air Quality, %

Relevant SDG Indicator	**SDG 3: Good Health and Well Being**	
Means of verification	**Criteria/Requirements**	**VVB Assessment**
	Measuring /Reading /Recording frequency	Biennial (Every two years)

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency in line to the VPA-DD /2/.
	How were the values in the monitoring report verified?	Since the ICS distribution reduces the indoor air pollution, the number of beneficiaries under this VPA 61 are considered to have achieved this SDG target. The value was determined through the usage / monitoring surveys to check the pollution- related inconveniences such as respiratory problems, itchy eyes, smoke levels etc. after the implementation of the project activity. The verification team also confirmed from the end-users during the on-site audit if they were facing any such issues. The end users reported that they are experiencing significant improvement in the indoor air quality. The verified value is: 94.30%.
	If applicable, has the reported data been cross-checked with other available data?	Monitoring database records, Usage surveys
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
Findings	CL 02 was raised and resolved.	
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/ and VPA-DD/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.	

SDG4-Number of people who participated in project trainings, Number

Relevant SDG Indicator	**SDG 4:**	
Means of verification	**Criteria/Requirements**	**VVB Assessment**
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the GS4GG rules/28/ and VPA-DD /2/.
	Monitoring equipment	Not applicable

	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The project records like training records and participants lists for the current monitoring period were checked to find out the number of people trained per year. BURN has a transparent data analysis and reporting system to keep a track of the people trained each year. The value is used for reporting on sustainable development of the project. The verified value is 93.
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
	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 1 to the CDM Project Standard?	Not applicable
Findings	CL 02 was raised and resolved.	
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/, GS4GG rules/28/ and VPA-DD/2 /. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.	

SDG5-Number of minutes spent on average for cooking in the project scenario, Minutes/ day

Relevant SDG Indicator	**SDG 5:**	
Means of verification	**Criteria/Requirements**	**VVB Assessment**
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the GS4GG rules/28/ and VPA-DD /2/.

	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The project monitoring survey was checked for the average number of minutes saved while cooking in project scenario (user estimate of comparative cooking time in baseline to project scenario) for the current monitoring period. The same was confirmed during the onsite audit conducted by the VVB where households were questioned regarding time spent in cooking and was there any difference in time spent in cooking using ICS and traditional cookstoves. All the interviewed households confirmed that less time was spent in cooking in ICS. The value applied is the statistical average of the end-user reported difference between the number of minutes spent cooking in the project scenario compared to baseline conditions for similar meals. BURN has a transparent data analysis and reporting system to keep a track of the people trained each year. The value is used for reporting on sustainable development of the project. The verified value is 79 minutes/ day.
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
	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 1 to the CDM Project Standard?	Not applicable
Findings	CL 02 was raised and resolved.	
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/, GS4GG rules/28/ and VPA-DD/2 /. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.	

SDG7-Number of sold/ distributed ICS in use, Number

Relevant SDG Indicator	**SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all**
Means of verification	

Criteria/Requirements	**VVB Assessment**
Measuring /Reading /Recording frequency	Continuous
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the GS4GG rules/28/ and VPA-DD /2/.
Monitoring equipment	Not applicable
Calibration frequency /interval:	Not applicable
How were the values in the monitoring report verified?	The project records like contracts, payment slips, employee list, database/ sales records or Monitoring Survey Records/9/ were checked to find out the number of ICS in use. To calculate the value the total number of ICS sold/distributed is summed up in the database and multiplied with usage rate. The verified value is 118,787.
If applicable, has the reported data been cross-checked with other available data?	Not Applicable
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
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 1 to the CDM Project Standard?	Not applicable

Findings	No findings raised.
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/, GS4GG rules/28/ and VPA-DD/2 /. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.

SDG8: Number of people directly employed by the project, Number

<table>
<tr><td>Relevant SDG Indicator</td><td colspan="2">SDG7: Decent Work and Economic growth</td></tr>
<tr><td>Means of verification</td><td>Criteria/Requirements</td><td>VVB Assessment</td></tr>
<tr><td></td><td>Measuring /Reading /Recording frequency</td><td>Annual</td></tr>
<tr><td></td><td>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</td><td>Yes, the frequency is in line to the GS4GG rules/28/ and VPA-DD /2/.</td></tr>
<tr><td></td><td>Monitoring equipment</td><td>Not applicable</td></tr>
<tr><td></td><td>Calibration frequency /interval:</td><td>Not applicable</td></tr>
<tr><td></td><td>How were the values in the monitoring report verified?</td><td>The project records like contracts, payment slips, employee list or others/11/were checked to identify as part of the assessment. Since the data collection is robust as stated above, and the source is primary, the value of 304 people being employed was verified.</td></tr>
<tr><td></td><td>If applicable, has the reported data been cross-checked with other available data?</td><td>Not Applicable</td></tr>
<tr><td></td><td>Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?</td><td>The QA/QC processes were deemed to be appropriate and trustworthy.</td></tr>
<tr><td></td><td>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 1 to the CDM Project Standard?</td><td></td></tr>
<tr><td>Findings</td><td colspan="2">CAR 03 and CL 02 were raised and resolved.</td></tr>
<tr><td>Conclusion</td><td colspan="2">Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/, GS4GG rules /28/ and VPA-DD/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.</td></tr>
</table>

SDG15: Reduced non-renewable biomass consumption attributed to charcoal savings, Tons

Relevant SDG Indicator	**SDG15:**

Means of verification	**Criteria/Requirements**	**VVB Assessment**
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the GS4GG rules/28/ and VPA-DD /2/.
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	The achieved target for this SDG is calculated as 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 Nigeria. Since the data collection is robust as stated above, and the source is primary, the value of 558,452.78 tons of charcoal being saved was verified. The value is monitored as direct measurement based on project database, monitoring and usage surveys.
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
	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 1 to the CDM Project Standard?	NA
Findings	No findings raised.	
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/, GS4GG rules /28/ and VPA-DD/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.	

E.5.5. Implementation of sampling plan

Means of verification	The sampling plan was implemented by the CME in accordance with the Gold Standard methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 3.1/6/, and the CDM EB 110, Annex 1, Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities v.9.0/26/. **<u>Parameters to be covered through monitoring surveys:</u>** The CME has conducted following kinds of surveys: Usage Surveys: • $U_{p,y}$-- Usage rate in project scenario p during year y determined on a sampling basis Project Monitoring Survey/Project Field Tests: • $P_{,p,y}$- Quantity of fuel consumed in project scenario p during year y, in tonnes, and as derived from the statistical analysis conducted on the data collected during the project performance field tests **Monitoring survey (by CME) duration:** The monitoring survey (field survey / tests) was carried out by CME representatives between following duration for the current monitoring period.

Technology	Monitoring dates	Monitoring frequency	Monitoring survey applicable for this MP?
ICS	08/06/2023 to 14/08/2023	Annual	Yes

Thus, it is confirmed that monitoring survey is applicable for the entire monitoring period.

<u>Sample size calculation for different tests</u>

Usage Survey: All monitored parameters were evaluated using simple random sampling with the requisite precision/confidence. Usage survey was done to determine usage and changes in circumstances experienced following the ICS project's deployment. The sample size was determined using the TPDDTEC Version 3.1 guideline/6/, which indicates that for a group size more than 1000, a minimum sample size of 100 is required for such a survey. Using MS Excel random selection algorithm, CME drew samples at random from the Monitoring Database. The representation of different age groups of distribution was also considered with 30 samples from each vintage picked in accordance with methodological sampling requirements. To ensure accurate representation of the entire population, the usage surveys were conducted on 158 randomly chosen improved cookstoves dispersed across the project distribution boundary.

Kitchen Performance Tests (Project KPT): The KPT sample size determination was based on the guidelines provided in the TPDDTEC Version 3.1 methodology/6/ for evaluating the fuel consumption in the project scenario. The sample size in cases of independent samples was calculated, yielding a sample size of 60. This resulted in a precision of 90/30 being met.

In case, the confidence/precision is not met for any parameter for improved cookstove, the upper or lower bound is conservatively applied to arrive at final values for the parameter, which is found in line and acceptable.

Sample Size

As per the applied methodology, 218 surveys were conducted which included 158 for usage monitoring survey and 60 project KPTs. All the surveys were conducted in-person. Data was collected by trained enumerators who spoke the local language. All households visited had the following evidence:

i. GPS coordinates

ii. Photographs showing general kitchen area

Unreachable and declining households

Out of all surveys conducted, there were households that declined to participate in the surveys, while others were unreachable during the duration of the survey period. For all unreachable households, the PP ensured to make at least 3 separate attempts to reach the household before they were discounted as unreachable. To replace such households, the PP ensured to select the next available household in the randomized list of households until they found a household available for the surveys. A total of 304 households were replaced due to unreachability of the households at the time of the surveys, while 417 households declined to participate in the surveys for various reasons.

Results

Usage Survey

Type of survey	Period of survey	Actual number of samples Conducted	Achieved precision
Usage/monitoring survey	08/06/2023 to 14/08/2023	158	Not applicable. Minimum sample size of 100

Kitchen Performance Tests

Stove type	Period of KPT	Actual number of samples (N° of stoves) conducted	Achieved precision
Jikokoa	13/06/2023 to 17/07/2023	60	7%

Since for the project KPT, the 90/30 precision was followed, and precision attained was 7% the mean bound value was considered for ER calculation.

Findings	No findings raised.
Conclusion	The verification team confirmed that the sampling plan and the parameter values are in accordance with the monitoring plan provided in PoA DD/1/ and the VPA DD/2/.

E.5.6. Assessment of data and calculation of emission reductions or net removals

E.5.6.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

Means of verification

1- SDG-13: Climate Action

The equations used were found consistent with the revised accepted PoA-DD /1/, VPA DD/2/ and the applied methodology TPDDTEC, version 3.1/6/.

According to the methodology TPDDTEC, version 3.1, emission reductions shall be calculated as:

$ER_y = \Sigma b,p\ (N_{p,y} * U_{p,y} * P_{p,b,y} * NCV_{b,\ fuel} * (f_{NRB,b,\ y} * EF_{fuel,\ CO2} + EF_{fuel,\ nonCO2})) - \Sigma\ LE_{p,y}$ (Equation 1)

Where,

$\Sigma b,p$	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 fuel savings for an individual technology of project p against an individual technology of baseline b in year y, in tons/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 (drop this term from the equation when using a fossil fuel baseline scenario)
$NCV_{b,fuel}$	Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/ton)
$EF_{b,fuel,CO2}$	CO2 emission factor of the fuel that is substituted or reduced. 112 tCO2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{b,fuel,nonCO2}$	Non-CO2 emission factor of the fuel that is reduced
$LE_{p,y}$	Leakage for project scenario p in year y (tCO2e/yr)

The methodology directly provides the following equation for emission reductions; without separate baseline, project or leakage emission reduction equations

$$P_{p,b,y} = (Pb,y - Pp,y)$$

$P_{p,b,y}$	Specific fuel savings in wood equivalent
$P_{b,y}$	Baseline fuel consumption
$P_{p,y}$	Project fuel consumption

b) **SDG-1:**

In the baseline scenario, it is estimated that households spend 100% in charcoal fuel, i.e., that there are no savings. The savings are a result of the implementation of the project activity.

c) **SDG-3:**

	In the baseline scenario, it is estimated that 100% of the households suffer pollution- related inconveniences (such as smoke levels, itchy eyes and breathing problems). Improved air quality is a result of the implementation of the project activity. **d) SDG 4:** In the baseline scenario, it is estimated that no trainings were held in the absence of the project, and therefore baseline value of 0 is applied for the baseline. **e) SDG 5:** In the baseline scenario, there are no time savings related to use of an ICS. Through the usage monitoring surveys, households were asked how much time is taken in minutes per day to prepare typical meals after using the project. **f) SDG-7:** In the baseline scenario, it is estimated that no improved cookstoves are implemented, hence the baseline value is zero. The distribution of improved cookstoves is a result of the implementation of the project activity. **g) SDG-8:** In the baseline scenario, it is estimated that no jobs are being generated. Job creation is a result of the implementation of the project activity. **h) SDG 15:** In the baseline scenario, 932,567.70 tons of non-renewable biomass are consumed. This is a calculated value which is a function of: Number of ICS * Weighted average Usage rate*Baseline Fuel consumption* f_{NRB} Detailed assessment of all the parameters used to calculate emission reductions is provided under section E.5.4.2. The calculations presented in the Monitoring Report /4/ and the corresponding ER sheet /4/ were found appropriate and complying with provisions prescribed in the registered monitoring plan/1/ of the respective revised accepted VPA-DD/2/, PoA-DD/1/ and applied methodology/6/.
Findings	No findings were raised
Conclusion	The verification team verified that: a) A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.5.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet /5/ of final Monitoring Report /4/. b) The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5.4.2 of this report. c) The calculations of baseline emissions as presented in the corresponding ER calculations sheet /5/ of final Monitoring Report /4/ were checked and found to be consistent with the formulae and methods described in the monitoring plan of VPA-DD /2/, registered PoA-DD /1/ and the applied methodology/6/. d) All assumptions used in the emission calculations were found appropriate and therefore justified e) Appropriate emission factors, IPCC default factors and other reference values have been correctly applied. This has also been elaborated under Section E.5.4.1 of this report. f) No standardized baseline was prescribed in the registered PoA-DD /1/.

E.5.6.2. Calculation of project value or estimation of project situation of each SDG Impact

Means of verification	**a) <u>SDG-13: Climate Action:</u>** The transparent ex-post calculations of the outcomes of SDG 13 (i.e., CO2e reductions) are provided in a separate excel spreadsheet uploaded to GS registryfor the performance certification review. The methodology directly provides the following equation for emission reductions; without separate baseline, project or leakage emission reduction equations. ERy = ∑b,p (Np,y* Up,y* Pp,b,y* NCVb, fuel * (f NRB,b, y * EFfuel, CO2 + EFfuel, nonCO2))– ∑ LEp,y Where, ∑b,p: Sum over all relevant (baseline b/project p) couples Np,y: Cumulative number of project technology-days included in the project database for project scenario p against baseline scenario b in year y Up,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 fuel savings for an individual technology of project p against an individual technology of baseline b in year y, in tons/day, as derived from the statistical analysis of the data collected from the field tests $fNRB_{b,y}$: Fraction of biomass used in year y for baseline scenario b that can be established as non-renewable biomass (drop this term from the equation when using a fossil fuel baseline scenario) $NCV_{b,fuel}$: Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/ton) $EF_{b,fuel,CO2}$: CO2 emission factor of the fuel that is substituted or reduced. 112 tCO2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel $EF_{b,fuel,nonCO2}$: Non-CO2 emission factor of the fuel that is reduced $LE_{p,y}$: Leakage for project scenario p in year y (tCO2e/yr) $P_{p,b,y} = (P_{b,y} - P_{p,y})$ $P_{p,b,y}$: Specific fuel savings in wood equivalent $P_{b,y}$:Baseline fuel consumption $P_{p,y}$: Project fuel consumption Results from this monitoring period shows that in MPI, the project has achieved 590,015 tCO_2e emission reductions. **b) <u>SDG-1:</u>** The monitoring of SDG 1 has been made through a qualitative evaluation of a sample of households during the usage/monitoring survey (either site visits or telephone surveys) to check on the money spent for purchasing charcoal in the project scenariocompared to the baseline scenario. Results from this monitoring period show that in average the monetary savings are 51% related to the purchase of charcoal in the project scenario. **c) <u>SDG-3:</u>** The monitoring of SDG 3 has been made through a qualitative evaluation of a sample of households during the usage/monitoring survey (physical site visits) to check on the pollution-related in conveniences (such as

	smoke levels, itchy eyes and breathing problems) in the project scenario compared to the baseline scenario. Results from this monitoring period show that 94.30% of respondents perceive air quality improvements at their homes since purchasing and cooking with the project stove as compared to the baseline. **d) SDG-4:** The number of people trained in this monitoring period is, 93 members of staff (casual/contract). Participant lists have been provided as support documents. **e) SDG-5:** The time savings achieved in relation to cooking time between the project and baseline scenario was calculated based on results from the Usage monitoring survey and the baseline surveys. Households reported on average time savings of 79 minutes per day. **f) SDG-7:** The parameter 'project technologies in use' has been calculated as part of the outcome calculation for SDG 13 and is provided in the separate ER calculation excel spreadsheet. The eligible project technology days are multiplied with the usage rate (Up,y) to determine the 'project technologies in use'. In this monitoring period, the project technologies in use have been calculated as 118,787. **g) SDG-8:** The number of created jobs has been determined for the respective years of the monitoring period. Both Casual and Contract employees have been considered for this parameter. 21 local jobs have been created in this monitoring period. An employee list has been provided as a supporting document. **h) SDG-15:** The tons of non-renewable biomass saved in the project scenario from use of project ICS was achieved by calculation of baseline Tons of NRB and Project NRB. The exact approach is as follows: Number of ICS * Up,y * Ppby * fNRB. The result achievement in the project resulted in savings of 558,452.78 tons of non-renewable biomass saved in this monitoring period.
Findings	CAR 04 was raised and resolved.
Conclusion	The verification team verified that: a) A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.5.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet /5/ of final Monitoring Report /4/. b) The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5.4.2 of this report.

E.5.6.3. Calculation of leakage

Means of verification	The 5 conditions under which the leakage should be accounted for is not observed in this project activity. The detailed discussion on the same is provided in section E.5.4.2 above under the parameter LE_y.
Findings	No findings raised.
Conclusion	A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section

	E.5.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet /5/ of final Monitoring Report /4/. The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5.4.2 of this report.

E.5.6.4. Calculation of net benefits or direct calculation for each SDG Impact

Means of verification	SDGs Targeted	SDG Impact	Baseline estimate	Project estimate	Net benefit
	13	Climate Action	N/A	N/A	590,015 tCO_2e ERs
	1	No Poverty	0%	51%	51%
	3	Good Health and Well-being	0%	94.30%	94.30%
	4	Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university	0	89	89
	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	0	79	79
	7	Ensure access to affordable, reliable, sustainable and modern energy for all	0	118,787	118,787
	8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	0	304	304
	15	Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded	932,567.70	374,114.91	558,452.78

		forests and substantially increase afforestation and reforestation globally			

The calculation methods applied for all the SDG impacts were checked with the registered PoA-DD/1/ and VPA-DD/2/.
The verification team confirms that the stated figures were checked and found acceptable.

Findings	No findings raised.
Conclusion	The verification team confirms that a) The complete data was available and is duly reported b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section E.4 of this report); c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed d) Appropriate emission factors, IPCC default factors and other reference values were correctly applied. e) The total number of VERs achieved during the current monitoring period is 620,299 tCO_2e.

E.6. Comparison of actual SDG Impacts with estimates in approved PDD

Means of verification

From Section E.5 of the Monitoring Report, it is apparent that estimated values were off while the project monitored its progress.

SDGs Targeted	SDG Impact	Values estimated in ex ante calculation of approved PoA-DD for this monitoring period	Actual values achieved during this monitoring period
13	Climate Action	1,932,780 tCO_2e ERs	590,015 tCO_2e ERs
1	No Poverty	51%	51%
3	Good Health and well being	94.30%	94.30%
4	Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university	93	93
5	Recognize and value unpaid care and domestic	79	79

		work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household		
	7	Affordable and clean energy	220,070	118,787
	8	Decent Work and Economic Growth	304	304
	15	Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	1,012,881.00	558,452.78

As the result of the VPA-DD, 1,932,780 tCO_2e were expected to be reduced within a time frame of 13/12/2021 – 08/06/2023 (both days inclusive is 543 days). However, based on monitoring data, actual emission reductions so far are only 590,015 tCO_2e during this monitoring period i.e., 30.5% of the estimated emissions reductions were achieved during this monitoring period.

The actual SDG targets against the anticipated values in VPA-DD is lower for SDG 7and SDG 15 and equivalent for SDG 1, SDG 3, SDG 4, SDG 5 and SDG 8.

Findings	None
Conclusion	The actual emission reductions achieved in the current monitoring period for the VPA are lower than the estimated emission reductions in the VPA-DD/2/. The actual SDG targets for SDG 7 and SDG 15 are lower than estimated and equivalent for other SDG targets stated in the VPA-DD /2/. Therefore, it has been accepted by the verification team.

E.6.1. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

Means of verification	The Monitoring Report /4/ and corresponding ER calculations sheet /5/, show that the actual emission reductions achieved for project stove during this monitoring period are lower to those estimated in VPA-DD /2/.
Findings	None
Conclusion	No justification was sought from the PD because the achievement of emission reductions were lower than what had been estimated.

E.7. Stakeholder Inputs and Legal Disputes

Means of verification	Since there were no negative comments reported in the Grievance mechanism for the current period, as confirmed from the logbooks and interviews of the end users, this section is not applicable. No Legal disputes have been indicated by the CME during the interviews. CME has added declaration in the monitoring report indicating that no legal contest has arisen during the current monitoring period. The stakeholder mitigations that were agreed to be monitored include aftersales mechanism to ensure customer complaints are registered and addressed continuously. Interviews of end-users were conducted by the verification team during the on-site audit, and all end-users confirmed that they were aware of the complaints mechanism and had contact information of the CME representatives in case they have any complaints regarding the project ICS. The measures to address such complaints may include repair or replacement of ICS, depending on the degree of damage.
Findings	None
Conclusion	Since there were no negative comments reported in the Grievance mechanism for the current period. This section is not applicable.

SECTION F. Internal quality control

The verification report that is prepared by the verification team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by Earthood were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable GS4GG requirements. The technical review team is collectively required to possess technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of the technical review team are independent of the verification team.

During the technical review process, additional findings may be identified, or the closed-out findings may be opened, which needs to be satisfactorily resolved before the request for issuance is submitted to Gold Standard. The independent technical reviewer may either approve the report as such or reject/return the same in such case providing the comments/findings/issues that need to be resolved by the verification team. The decision taken by the Technical Reviewer is final and is authorized on behalf of Earthood Services Private Limited.

SECTION G. Verification opinion

Earthood Services Private Limited (Earthood), contracted by, has performed the independent verification of the emission reductions for the GS Project 11671 "Efficient and Clean Cooking for households in the Nigeria" in the host country "Federal Republic of Nigeria" for the monitoring period 13/12/2021 to 08/06/2023 (both dates inclusive), as reported in the Monitoring Report, Version 5.0 dated 16/01/2024. The 'BURN Manufacturing Co.' is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity. Earthood commenced the verification against the baseline and monitoring methodology "TPDDTEC – "Technologies and Practices to Displace Decentralized Thermal Energy Consumptions, Version 3.1", the monitoring plan contained in the VPA-DD and Monitoring Report Version 6.0 dated 21/02/2024.

VVB'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. Earthood planned and performed the verification by obtaining evidence and other information and explanations that Earthood considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

The verification team confirms that:

- The PoA was found completely implemented as per the description given in the VPA -DD.
- The actual operation conforms to the description in the registered PoA - DD and VPA- DD

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 the 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 6.0 dated 21/02/2024. ESPL, based on outcome of verification activities, certifies in writing that, during the monitoring period 13/12/2021 to 08/06/2023 (inclusive of both the dates), the registered GS PoA "ECOA_BURN multi country Clean Cooking Programme" achieved the verified amount of 590,015 tCO_2e reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the PoA.

The verified amount of emission reductions is stated below as per implemented VPAs and as per commitment period:

Verified and certified emission reductions as per monitoring period:

Monitoring period	**Amount**
From 13/12/2021 till 31/12/2021	20,645
From 01/01/2022 till 31/12/2022	396,603
From 01/01/2021 till 08/06/2023	172,767
Total	**590,015** tCO_2e VERs

Appendix 1. Abbreviations

Abbreviations	Full texts
AQL	Acceptable Quality Level
CAR	Corrective Action Request
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
CER	Certified Emission Reduction
CH4	Methane
CL	Clarification Request
CME	Coordinating and Managing Entity
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CO2	Carbon dioxide
COVID	Corona Virus Disease
COV	Coefficient of Variance
CPA	Component Project Activity
CP	Crediting period
DNA	Designated National Authority
EB	Executive Board
ER	Emission Reductions
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GS4GG	Gold Standard for Global Goals
GPS	Geographical Positioning System
HH	Household
ICS	Improved Cook Stoves
ID	Identity
IR	Internal Resource
IPCC	Intergovernmental Panel on Climate Change
Kg	kilogram
KPT	Kitchen Performance Test
MR	Monitoring Report
NCV	Net Calorific Value
PDD	Project Design Document
PoA	Programme of Activities
QA/QC	Quality Assurance/ Quality Control
RMP	Registered monitoring plan
OSV	Onsite Visit
TA	Technical Area (with in Sectoral Scope)
TR	Technical Review/er
TJ	Terra Joule
VCR	Verification and Certification report
VER	Verified Emission Reduction
VVS	Validation and Verification Standard
UNFCCC	United Nations Framework Convention on Climate Change
UQL	Unacceptable Quality Level
VPA/VPA-DD	VPA is for 'Verified Project Activity' (whereas DD stands for Design Document)
VVB	Validation and Verification Body
UNFCCC	United Nation Framework convention on Climate change
QA/QC	Quality Assurance and Quality control

Appendix 2. Competence of team members and technical reviewers

Competence Statement			
Name	Arohi Jain		
Education	M. Sc. Environmental Sciences B.Sc. Biology		
Experience	3 years 5 months		
Field	Environmental Sciences		
Approved Roles			
Team Leader	Yes (VM)		
Validator	Yes (VM)		
Verifier	Yes (VM)		
Local expert	Yes (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	Yes (VM TA 3.1)		
Reviewed by	Shifali Guleria, Quality Manager	**Date**	30/05/2023
Approved by	Deepika Mahala, Technical Manager	**Date**	30/05/2023

Competence Statement			
Name	Shifali Guleria		
Education	M.Sc. (Environmental Studies and Resource Management), TERI University		
Experience	3+ year		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	YES (AMS-I.A., AMS-II.G., AMS-II.E., AMS-III.A.V., AMS-I.D, ACM0002)		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (1.2, 3.1)		
Reviewed by	Deepika Mahala	**Date**	16/02/2022
Approved by	Ashok Gautam	**Date**	18/02/2022

Competence Statement			
Name	Kumden Nanbal Luka		
Country	Nigeria		
Education	B.tech. in Urban and Regional Planning		
Experience	1+ years		
Field	Environment; Urban-Rural planning		
Approved Roles			
Team Leader	No		
Validator	No		
Verifier	No		
Methodology Expert	No		
Local expert	Yes (Nigeria)		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	No		
Reviewed by	Shreya Garg	**Date**	23/11/2018
Approved by	Anshika Gupta	**Date**	23/11/2018

Competence Statement			
Name	Shreya Garg		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	9 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., AMS.III.BL, ACM0002, ACM0012		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Shifali Guleria	**Date**	26/04/2022
Approved by	Deepika Mahala	**Date**	26/04/2022

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	BURN Manufacturing Co.	PoA-DD	Version 4.1 dated 13/10/2021	CME
2.	BURN Manufacturing Co.	VPA-DD	Version 4.0 dated 21/02/2024	CME
3.	ESPL	Validation Report for inclusion of VPA	Version 5.0, dated 21/02/2024	Others
4.	BURN Manufacturing Co.	Monitoring Report	Version 6.0 dated 21/02/2024	CME
4.1	GS4GG	Monitoring report template Guide	Version 1.1, published on 14/10/2020	GS4GG
5.	BURN Manufacturing Co.	ER Sheet	Corresponding to latest MR	CME
6.	The Gold Standard Foundation	The Gold Standard Simplified Methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC)	Version 3.1, Dated 25/08/2017	Others
7.	BURN Manufacturing Co.	Database Technology Days and Stoves in Use-Jikokoa	-	CME
8.	BURN Manufacturing Co.	Cover Letter	Dated 21/06/2022	CME
9.	BURN Manufacturing Co.	Verification Checklist	Dated 30/08/2022	VVB
10.	BURN Manufacturing Co.	Manufacturers Specifications BURN Jikokoa Stoves	-	CME
11.	BURN Manufacturing Co.	Employee List	Dated 22/08/2023	CME
12	BURN Manufacturing Co.	Grievance logbook	-	CME
13.	ESPL	On- site audit	From 24/08/2023 to 26/08/2023	VVB
14.	BURN Manufacturing co.	CONFIDENTIAL_Clarification Request_Burn_NCVwood_HH (CL_171)	Dated 08/06/2023	CME
15.	IPCC	IPCC Guidelines for National Greenhouse Gas Inventories 2.1 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_	-	Others

		Volume2/V2_2_Ch2_Stationary_Combustion.pdf)		
16.	BURN Manufacturing co.	MCMOU CONFIDENTIAL CONTRACT	Dated 31/04/2021	Others
17.	BURN Manufacturing co.	fNRB Report and fNRB calculation sheet	Dated 22/01/2021	Others
18.	BURN Manufacturing co.	Calibration Certificates	-	CME
19.	GS4GG	Principles and Requirements https://globalgoals.goldstandard.org/101-par-principles-requirements/	Version 1.2 Dated October 2019	Others
20.	BURN Manufacturing co.	GS_inclusion Letter BURN	Dated 22/09/2022	CME
22.	BURN Manufacturing co.	ODA-Declaration	Dated 12/04/2023	CME
22.	UNFCCC	VVS for PoA	Version 3.0	Others
23.	UNFCCC	PS for PoA	Version 3.0	Others
25.	UNFCCC	CDM guidelines for Sampling and surveys for CDM project activities and programmes of activities	Version 4.0	Others
26.	UNFCCC	Standard for Sampling and surveys for CDM project activities and programmes of activities	Version 09	Others
27.	UNFCCC	https://unfccc.int/cop7/documents/accords_draft.pdf	21/01/2002	Others
28.	GS4GG	Principle and requirements	Version 1.2	Others
29.	GS4GG	PoA Requirements	Version 2.0	Others
30.	GS4GG	CSA Requirements	Version 1.2	Others
31.	IPCC	2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table 2.9)	-	Others
32.	The Gold Standard Foundation	Rule update (03/06/2021): Applicability of GWP for GS for the Global Goals Projects	Dated 03/06/2021	Others
33.	IPCC	Default IPCC value (1996 IPCC Guidelines for National Greenhouse Gas Inventories) is applied (https://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf)	-	Others
34.	IPCC	IPCC 2019 value (Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas	-	Others

		Inventories), volume 2, chapter 4, Table 4.3.3		
35.	Clean Cooking Alliance	https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html	-	Others
36.	BURN	Weighing Scale Receipts	-	CME
37.	BURN	05SEP2023 Product Flyer	-	CME
38.	BURN	11SEP2023 Stove Receipt in Nigeria	-	CME
39.	BURN	13JULY2023_GS10789_VPA61_Nigeria_Grievance Mechanism Book	-	CME
40.	BURN	16JAN2023_GS10789_Nigeria_Baseline Training Participant List	-	CME
41.	BURN	21AUG2023_GS10789_Nigeria_VPA61_Monitoring Training _Signed Attendance list	-	CME
42.	BURN	23RDAUG2023_GS 10789_VPA61_Nigeria_Social Media Awareness	-	CME
43.	BURN	• 31JULY2023_GS19789_Nigeria_VPA61_Bilboard 1 • 31JULY2023_GS19789_Nigeria_VPA61_Bilboard 2 • 31JULY2023_GS19789_Nigeria_VPA61_Bilboard 3	-	CME
44	BURN	• 31JULY2023_GS19789_Nigeria_VPA61_Home visit • 31JULY2023_GS19789_Nigeria_VPA61_Home visit 2	-	CME
45.	BURN	• 31JULY2023_GS19789_Nigeria_VPA61_Promotional video 1 • 31JULY2023_GS19789_Nigeria_VPA61_Promotional video 2	-	CME
46.	BURN	• 31OCT2022 First Jikokoa Stove-POA 10789 Nigeria v1.1	-	CME
47.	BURN	• Kitchen Area Photo 1 • Kitchen Area Photo 2 • Kitchen Area Photo 3 • Kitchen Area Photo 4 • Kitchen Area Photo 5	-	CME
48.	BURN	English Jingle -Radio Advertisement	-	CME
49.	BURN	• Market Activation in Kano Nig • Market Activation in Nigeria	-	CME

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

TABLE 1. REMAINING FAR FROM VALIDATION AND/OR PREVIOUS VERIFICATION

FAR ID	NA	**Section no.**		**Date :** DD/MM/YYYY
Description of FAR				
NA				
CME response				**Date :** DD/MM/YYYY
NA				
Documentation provided by CME				
NA				
VVB assessment				**Date:** DD/MM/YYYY
NA				

TABLE 2. CAR FROM THIS VERIFICATION

CAR ID	01	**Section no.**	E.5.4.1	**Date :** 05/09/2023
Description of CAR				
In the description of the parameters 'NCV_b' and 'NCV_p' the value mentioned under 'Value(s) applied' is not inline with the applied methodology. Correction is requested.				
CME response				**Date :** 07/09/2023
The value applied for parameters NCV_b' and 'NCV_p' have been approved by the GS in clarification request submitted on 08/06/2023 reference Number CL_171, which approved the use of NCV value of 0.0156				
Documentation provided by CME				
CONFIDENTIAL _20230601 _Clarification Request_Burn_NCVwood_HH				
VVB assessment				**Date:** 15/09/2023
The VVB has assessed the CL_171 submitted by the CME and found that the usage of IPCC default value of 0.0156 TJ/ton for NCV against TPDDTEC v3.1 default value of 0.015 TJ/ton has been approved by SustainCERT. Hence, CAR 01 is closed.				

CAR ID	02	**Section no.**	E.5.4.1	**Date :** 05/09/2023
Description of CAR				
The following inconsistencies have been observed under section D.1 of the MR: 1. The value of the parameter '$EF_{b,wood,non-CO2}$' is found to be inconsistent with the value mentioned in the VPA-DD. 2. The value of the parameter '$EF_{p,wood,non-CO2}$' is found to be inconsistent with the value mentioned in the VPA-DD. 3. The value of the parameter '$fNRB_{i,y}$' is found to be inconsistent with the value mentioned in the VPA-DD. 4. The parameter 'NCV_{LPG}' is not mentioned under section B.6.2 of the VPA-DD. 5. The parameter '$EF_{b,LPG,CO2}$' is not mentioned under section B.6.2 of the VPA-DD. 6. In the description of the parameters 'NCV_b' and 'NCV_p' the value mentioned under 'Value(s) applied' is not in line with the applied methodology. Correction is requested.				
CME response				**Date :** 07/09/2023
1. CME has updated the value of '$EF_{b,wood,non-CO2}$' to 9.46 which is consistent with the VPA DD 2. CME has updated the value of '$EF_{p,wood,non-CO2}$' to 9.46 which is consistent with the VPA DD 3. The value of the parameter 'fNRBi,y' is now consistent with the value provided in the VPA DD 4. The parameter 'NCV_{LPG}' is now mentioned under section B.6.2 of the VPA-DD. 5. The parameter '$EFb_{,LPG,CO2}$' is now mentioned under section B.6.2 of the VPA-DD. 6. The value applied for parameters NCV_b' and 'NCV_p' have been approved by the GS in clarification request submitted on 08/06/2023 reference Number CL_171, which approved the use of NCV value of 0.0156				
Documentation provided by CME				
CONFIDENTIAL _20230601 _Clarification Request_Burn_NCVwood_HH				
VVB assessment				**Date:** 15/09/2023

The VVB has assessed the updated MR and VPA-DD submitted by CME and following have been observed:

1. The value of the parameter '$EF_{b,wood,non-CO2}$' is now consistent throughout the documents.
2. The value of the parameter '$EF_{p,wood,non-CO2}$' is now consistent throughout the documents.
3. The value of the parameter 'fNRBi,y' is now consistent in both the documents.
4. The parameter 'NCV_{LPG}' is now incorporated under section B.6.2 of the latest VPA-DD.
5. The parameter '$EFb_{,LPG,CO2}$' is now incorporated under section B.6.2 of the latest VPA-DD.
6. The Clarification Request form 'CL_171' dated 08/06/2023 has been assessed by the VVB and is of the opinion that the CME has been permitted to use the IPCC default value of NCV_{wood} i.e., '0.0156 TJ/ton' in place of applied methodology default value '0.015 TJ/ton' by SustainCERT.

Hence, CAR 02 is closed.

CAR ID	03	**Section no.**	E.5.4.2	**Date :** 05/09/2023
Description of CAR				
The achieved target for SDG 8 is mentioned as 304 which is a cumulative value. CME is requested to kindly bifurcate between permanent and contractual employments and the number of males and females employed during the current monitoring period throughout the MR and ER sheet.				
CME response				**Date :** 07/09/2023
CME has provided the list of casual and contract staff bifurcated by gender and employment type (contract/casual staff) from August 2021 to 8th June 2023 which is the duration of this monitoring period.				
Documentation provided by CME				
Employee list				
VVB assessment				**Date:** 15/09/2023
The VVB has assessed the Employee list submitted by the CME and found that a total of 153 females and 151 males have been employed during the current monitoring period. The employment of 251 employees is casual and 53 is contractual. Hence, CAR 03 is closed.				

CAR ID	04	**Section no.**	E.5.6.2	**Date :** 05/09/2023
Description of CAR				
The VVB has observed inconsistency in the number of decimal places in values mentioned in MR and the values in ER sheet. CME is requested to kindly keep the number of decimal places consistent in the documents as it may affect ER calculations for the project.				
CME response				**Date :** 07/09/2023
All values except for Default factors like NCV and EF have consistent decimal places (2 decimal places) in both the MR and the ER calculations				
Documentation provided by CME				
N/A				
VVB assessment				**Date:** 15/09/2023
The VVB has assessed the updated MR and ER sheet submitted by the CME and found the number of decimal places to be consistent for all the parameters consistent. Hence, CAR 04 is closed.				

TABLE 3. CL FROM THIS VALIDATION

CL ID	01	**Section no.**	List of documents	**Date :** 05/09/2023
Description of CL				
The CME is required to share the following documents: 1. Screenshot of the first and last ICS sold under the current MP 2. Records of skill development trainings (SDG 4) 3. Number of jobs created (SDG 8) (employment contracts + pay slips) 4. Purchase records of the equipments 5. Calibration certificates 6. Monitoring survey records (Photographs + training records) 7. Grievance logbook 8. Stakeholder feedback received during the current monitoring period Please note that this list is not exhaustive and may include more documents during the process of verification.				
CME response				**Date :** 07/09/2023
1. CME has provided as support documentation requested				
Documentation provided by CME				

1. Screenshot of the first and last ICS sold under the current MP - Provided
2. Records of skill development trainings (SDG 4) - Provided
3. Number of jobs created (SDG 8) (employment contracts + pay slips) - Provided
4. Purchase records of the equipments - Provided
5. Calibration certificates – Provided
6. Monitoring survey records (Photographs + training records) - Provided
7. Grievance logbook - Provided
8. Stakeholder feedback received during the current monitoring period – Photo Provided of the log book, no complaint received in this MP

VVB assessment	**Date:** 15/09/2023
The VVB has assessed all the supporting evidence submitted by the CME and found them to be appropriate. Hence, CL 01 is closed.	

CL ID	02	**Section no.**	E.5.4.2	**Date :** 05/09/2023
Description of CL				
The VVB has observed that the achieved SDG targets for SDG 1, SDG 3, SDG 4, SDG 5 and SDG 8 are higher than the estimated targets for the corresponding SDGs. CME shall provide detailed justification for the same under section E.6 of the monitoring report in accordance with the template guidelines.				
CME response				**Date :** 07/09/2023
VVB has updated the VPA DD based on the outcomes of the MPI achievements. There are no increments in the SDGs from Ex Ante to Ex Post, therefore no change in the MR section E.6				
Documentation provided by CME				
-				
VVB assessment				**Date:** 15/09/2023
The VVB has assessed the updated estimated SDG targets in the VPA-DD and found that the achieved SDG targets are now within the estimated SDG targets. Hence, CL 02 is closed.				

CL ID	03	**Section no.**	E.4.2	**Date :** 05/09/2023
Description of CL				
As stated in MR section C, 'Stoves were sold to end-users by BURN directly or through dedicated distributors.' CME is requested to share the MoUs with the distributors for the current monitoring period.				
CME response				**Date :** 07/09/2023
CME has provided a sample of a confidential Contract with a distributor in Nigeria				
Documentation provided by CME				
31APR2021_MCMOU CONFIDENTIAL CONTRACT				
VVB assessment				**Date:** 15/09/2023
The VVB has assessed the distributor contract submitted by the CME and found it to be appropriate. Hence, CL 03 is closed.				

CL ID	04	**Section no.**	On-site visit	**Date :** 05/09/2023
Description of CL				
It was observed during the on-site visit, that some of the end-users received Jikokoa stoves for 10500 Naira while some bought them for 16000 Naira. CME shall clarify about the exact cost of the project stoves determined to be sold under this project in Nigeria and share the supporting evidence for the same.				
CME response				**Date :** 05/09/2023
CME can confirm that the cost of the Project stoves has evolved over time as affected by cost of stove materials (manufacturing) and shipping as well as carbon finance investment availability for subsidy of the stove cost. The stove cost has gone from 10,500 Naira to 16,500 Naira and is now 12,500 as of July 2023.				
Documentation provided by CME				
Receipt of a stove sale showing current cost of a Jikokoa stove in Nigeria				
VVB assessment				**Date:** 15/09/2023
The VVB has assessed the receipt of sale of project ICS in Nigeria and found that the stove was sold for 12,500 Naira in August 2023. Therefore, the VVB is of the opinion that the cost of the project ICS is now constant at 12,500 Naira. Hence, CL04 is closed.				

TABLE 4. FAR FROM THIS VERIFICATION

FAR ID	-	**Section No.**	-	**Date :** DD/MM/YYYY
Description of FAR				
-				
CME response				**Date :** DD/MM/YYYY
Documentation provided by CME				
VVB assessment				**Date:** DD/MM/YYYY

E.G., THERE IS NO FAR FROM THIS VERIFICATION.