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	2.0
Completion date of the verification and certification report	07/01/2025
Monitoring period number and duration of this monitoring period	2nd monitoring period Duration: 09/06/2023-01/03/2024 (inclusive of both days)
Version number of the monitoring report to which this report applies	3.1 Dated: 24/12/2024
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 3.1.0
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	1,008,534	VERs (tCO_2e)
SDG:1 End poverty in all its forms everywhere	Monetary savings related to the purchase charcoal	50%	Equivalent monetary savings in %

SDG:3 (Good Health and Wellbeing) Ensure healthy lives and promote well-being for all at all ages	Perceived air quality	97.13%	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	285	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	41.59	Average time saved cooking for women in the project scenario (measured in minutes reported by end-user)
SDG:7 (Affordable and Clean Energy) Ensure universal access to affordable, reliable, sustainable and modern energy services	Number of sold/distributed	207,770	Number of sold/ distributed ICS in use
SDG:8 (Decent Work and Economic Growth) Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	No. of jobs created	279	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 increasze afforestation and reforestation globally	Total non-renewable biomass saved	552,675.07	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 Limited; E-0066
Name, position and signature of the approver of the verification and certification report	 Dr. Kaviraj Singh CEO

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. /42/

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 236,262 ICS distributions/ sales in Federal Republic of Nigeria in accordance with VPA 61 with the first ICS distributed on 19/08/2021. A total of 103,617 new stoves were distributed under the VPA for the current Monitoring Period.

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 and B2B approach through direct distribution or through dedicated distributors in Nigeria.

The monitoring period covered under this verification is 09/06/2023-01/03/2024 (inclusive of both the dates). The total GHG emission reductions for the current monitoring period is 1,008,534 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	1,008,534	VERs (tCO_2e)
SDG:1 End poverty in all its forms everywhere	Monetary savings related to the purchase of charcoal	50%	Equivalent monetary savings in %

SDG:3 Ensure healthy lives and promote well-being for all at all ages	Perceived air quality	97.13%	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	285	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	41.59	Average time saved cooking for women in the project scenario (measured in minutes reported by end-user)
SDG:7 Ensure universal access to affordable, reliable, sustainable and modern energy for all	Number of sold/distributed	207,770	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	279	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	552,675.07	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 3.1.0 /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/30/
(iv) GS4GG requirements /19/
(v) The CDM Validation and Verification Standard (VVS) version 3.0/32/ and the CDM Project Standard (PS) version 3.0/24/

(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 and corresponding ER sheet by verification team and onsite audit (including sampling approach (refer Section D.4 of this report) to be applied) /28/
c) Onsite audit (refer Section D.2 of this report) by verification team consistent of Team Leader, Verifier and Technical Area Expert, 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 09/06/2023-01/03/2024 (inclusive of both the dates), we confirm that the implementation of referenced registered PoA and its VPA 61 (MP2) is complying with applicable CDM and GS4GG rules and regulations as stated in the Monitoring Report (final) Version 3.1, dated 24/12/2024 /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 3.1.0"/6/ and the monitoring plan contained in the registered PoA-DD/1/ and VPA-DD/2/.

Earthood Services 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 09/06/2023-01/03/2024 (inclusive of both the dates) amounts to 1,008,534 tCO_2e. Therefore, this is being submitted for request for issuance, as per GS4GG/19/and UNFCCC procedures/22//23/.

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 & GS Approved Auditor	IR	Panicker	Vishnu	Central Office	Y	N	N	Y
2.	Verifier	IR	Karfa	Diyotima	Central office	Y	Y	Y	Y
3.	TA Expert (TA3.1)	IR	Sengupta	Akanksha	Central office	Y	Y	Y	Y
4.	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	Guleria	Shifali	Central Office
2.	Technical Expert (TA 3.1)	IR	Guleria	Shifali	Central Office
3.	Approver	IR	Singh	Kaviraj	Central office

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	15/07/2024-19/07/2024	Diyotima Karfa, Akanksha Sengupta, 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						
1	Laura	Toledano	BURN Project Manager- Carbon	16/07/2024-18/07/2024	VPA implementation, ER Sheet calculations, Monitoring procedures, Monitoring surveys, Trainings, Cost charged for project ICS, Discussion on on-site observations etc.	Diyotima Karfa, Akanksha Sengupta, Kumden Nanbal Luka (LE)
2	Vinit	Garg	Senior Carbon technical expert- BURN			
3	Hellen	Abejidi	Burn Enumerator			
4	Chris	McKinney	Burn Enumerator			
5	Olahiale	Olalere	Burn Enumerator			
6	Mayowa	Olubunmi	Burn Enumerator			
7	Adesewa	Adewuyi	Burn Enumerator			

8	Olaniran	Oyedokun	Burn Enumerator			
9	Imole	Babatunde	Burn Enumerator			
10	Oluwertinilehin	Adeusi	Burn Enumerator			
Project Monitoring Survey Responses						
1.	Adebayo	Bolaji	End-user of ICS	16/07/2024 - 18/07/2024	The range and extent of questions asked during the survey is presented in detail in the ensuing sections in section D.3.1	Diyotima Karfa, Akanksha Sengupta, Kumden Nanbal Luka (LE)
2.	Nike	Asebiomo	End-user of ICS			
3.	Monica	Ajomole	End-user of ICS			
4.	Omojola	Ajewole	End-user of ICS			
5.	Kolawole	Awodoyin	End-user of ICS			
6.	Justina	Martins	End-user of ICS			
7.	Olajungu	Moses	End-user of ICS			
8.	Adesiyan	Tunrayo	End-user of ICS			
9.	Taiwo	Adegboyega	End-user of ICS			
10.	Ganiyat	Gbadamosi Mikki	End-user of ICS			
11.	Ajayi	Timilehia	End-user of ICS			
Project KPT Survey Responses						
1.	Azeez	Toyin	End-user of ICS	16/07/2024 - 18/07/2024	The range and extent of questions asked during the survey is presented in detail in the	Diyotima Karfa, Akanksha Sengupta, Kumden Nanbal Luka (LE)
2.	Ojo	Gabriel	End-user of ICS			
3.	Adesanmi	Abiodum Tge	End-user of ICS			
4.	Bamidele	Ajayi	End-user of ICS			
5.	Adejuwon	Aminat	End-user of ICS			

6.	Abiodun	Okerinde	End-user of ICS		ensuing sections in section D.3.1	
7.	Bukola	Gbadebo	End-user of ICS			
8.	Abimbola	Olusayo	End-user of ICS			
9.	Kolawole	Olaonipekum	End-user of ICS			
10	Kehinde	Ogundoro	End-user of ICS			
11.	Adebayo	Atinuke	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/41/

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.	Did monitoring team visit you to conduct KPT?
15.	How many days was the KPT conducted for?
16.	Did the team visit your household each day?
17.	Any other remarks (less fuel consumption, bigger stove etc.)
18.	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 /39/. While no adverse or negative responses were received regards the usage or convenience of use of stove, 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 followed 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. Simple random sampling approach was used by CME and The total sample size for Usage Monitoring surveys was 234 surveys i.e. 174 for Usage Monitoring surveys, and 60 Project KPTs. 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 with 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) /25/ 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". Para 30 and 31 of standard suggests the AQL, UQL and maximum errors which have been followed by the VVB. The table 2 of Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 9, prescribes minimum sample size and acceptance number for discrepant values. Applying para 30 and 31 of the standard, verification will require 11 samples to be covered in order to verify the CME's sampling plan . 11 samples for usage survey and 11 samples for KPT have been selected./25/.

VPA Ref no.	AQL	UQL	Producer risk	Consumer risk	Sample size; min	Acceptance no.
GS11671	0.5%	20%	10%	10%	11	0

The verification team selected random samples from the monitoring database provided by the CME to check their acceptability, And The total samples to be covered are 11 each from Usage survey and KPT survey. Since the CME has applied simple random VPA sampling, the VVB has also applied the same. Therefore, the total samples to be covered per VPA are as follows: the sample size 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/

VPA	Usage Survey	KPT Survey
VPA 61	11	11
Total	22	

- 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% was 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.

The assessment team picked 22 samples across all age groups on random basis from the CME's survey records. The users were communicated in advance to ensure they are comfortable in responding to the survey questionnaire. There was no sample that was left unresponsive, and therefore, the verification team visited 11 households. VVB has selected the samples considering the vintages for each of the VPAs. During the on-site interviews with end-users, all the details were found correct, and no discrepancies were observed in the CME's monitoring data.
The CME applied a sampling approach which is sufficiently representative of the stove population w.r.t to the numbers and vintage, as demonstrated appropriately in the ER sheet/5/. VVB confirmed that the required confidence level has been met for the sampled data and that the samples were randomly selected and are representative of the entire population. The sampling method used by CME are in line with "Standard for Sampling and surveys for CDM project activities and programmes of activities"/26//27/.

The Verification team covered a total of 22 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. The sampling has been done VPA wise to select the samples for the audit. 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	-	-	FAR 01
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	-	-	-
• Data and parameters fixed ex ante or at renewal of crediting period	CL 02	CAR 02	-
• Data and parameters monitored	-	--	
• 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 01	-
• 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	-	CAR 01	-
• 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	-	-	-

Others (On-site visit)	02	-	-
Monitoring sales and records			01
Total	**02**	**02**	**01**

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	Yes

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, 236,262 ICS have been delivered through the VPA till the end of current monitoring period, and 103,617 new stoves were distributed for the duration of the current MP (09/06/2023 to 01/03/2024) /5/ and all of them have been recorded in the monitoring database. The first ICS was distributed under VPA 61 on 19/08/2021 /46/ which marks the start date of the VPA. The VPA is a regular 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 charcoal, 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 /10/:

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 Dimensions	cm	29.5 L x 29.5 W x 24.0 H9

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, and interviews performed during the onsite inspection.
- 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 in 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. /12/

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

<table>
<tr><td></td><td>was verified upon checking the logbook /12/ and email records onsite.</td></tr>
<tr><td>Findings</td><td>No findings raised.</td></tr>
<tr><td>Conclusion</td><td>
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 1,008,534 tCO_2e. The following values SDGs were attained in this monitoring period by VPA:

<table>
<tr><th>Sustainable Development Goals Targeted</th><th>SDG Impact</th><th>Amount Achieved</th><th>Units/Products</th></tr>
<tr><td>1. (No poverty) End poverty in all its forms everywhere</td><td>Monetary savings related to the purchase of charcoal</td><td>50%</td><td>Equivalent Monetary savings in %.</td></tr>
<tr><td>3. (Good Health and Wellbeing)Ensure healthy lives and promote well-being for all at all ages</td><td>Perceived air quality</td><td>97.13%</td><td>Households in % perceiving improved air quality</td></tr>
<tr><td>4. (Quality Education)

Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university</td><td>Number of people receiving skill development training</td><td>285</td><td>Number of people who participated in project training</td></tr>
<tr><td>5 (Gender Equality)

Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social</td><td>Average time saving associated with cooking in the project scenario</td><td>41.59</td><td>Average time saved cooking for women in the project scenario (measured in minutes reported by end-user)</td></tr>
</table>
</td></tr>
</table>

	protection policies and the promotion of shared responsibility within the household			
	7. (Affordable and Clean Energy) Ensure access to affordable, reliable, sustainable, and modern energy for all	Number of sold/distributed	207,770	Number of sold/ distributed ICS in use
	8. (Decent Work and Economic Growth) Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all	Number of jobs created	279	No. of local jobs created
	13 Climate	Emission Reductions	1,008,534	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 afforestation and reforestation globally	Total non-renewable biomass saved	552,675.07	Tons of non-renewable biomass saved in the project scenario from continued use of project technologies

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. /46/
- 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 6-digit format, is explained as follows:

Machine Identifier	SKU Identifier	SN	SN	SN	SN
A	2	Y	Y	S	2

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

- The first character is based on the laser machine.
- The next unique identifier is based on the SKU allowing us to identify a product with just the SN.
- The last four characters is a sequential alphanumeric sequence.
- These characters follow a particular sequence, guaranteeing the absence of repetition

An example of 6-digit USN pattern is provided in Section C of the MR.

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	144,371	
2024	21,403	
Total	**236,262**	

103,617 new stoves distributed during the current MP (09/06/2023 to 01/03/2024) as verified from the ER sheet tab "Nigeria assignments" /5/. There are total **236,262** ICS distributed under the VPA till the end of the current monitoring period as verified by the VVB from the distribution database /7/.

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.

Findings	No findings raised.
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 09/06/2023 to 01/03/2024 (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
03/2024 - 06/2024	Usage/ Monitoring Survey
03/2024- 04/2024	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 236,262 ICS were disseminated under this VPA, which is within the estimated quantity of 244,522 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 /38/ at the time of sale to the end-user.
Findings	CL 01 was raised and resolved.
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.

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 3.1.0 /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. 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	CL 02 was raised and resolved.
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-$EF_{b,CO2}$: CO2 emission factor arising from the use of fuel wood in baseline scenario, tCO_2/TJ

Means of verification	$EF_{b,CO2}$ - 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/15/. 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-$EF_{b,non-CO2}$: Non-CO_2 emission factor arising from use of fuels in baseline scenario, tCO_2/TJ

Means of verification	$EF_{b,non-CO2}$ – 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 tCO_2e/TJ (Fuelwood)
Findings	No findings raised.
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, tCO_2/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 tCO_2e/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, tCO_2/TJ

Means of verification	$EF_{p,nonCO2}$ – 2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table 2.5). The verified value is: 9.46tCO_2e/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-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, Volume 2, Chapter 1 Table 1.2. Default IPCC values for charcoal applied. /15/ This value is used for the determination of baseline emissions. The verified value is: 0.0295 TJ/ton
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-NCV_p: Net calorific value of fuel used in the project scenario, TJ/ton

Means of	NCV_p - 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1: Introduction, Table 1.2 - Default net calorific value of

verification	charcoal. This value is used for the calculation of project scenario. The verified value is: 0.0295 TJ/ton
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-$f_{NRB,i,y}$: 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 Seed Ecology. This value is used for the determination of baseline emissions. The verified value is: 0.8497
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	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- $EF_{LPG,CO2}$: CO2 emission factor arising from use of LPG in project scenario, tCO_2/TJ

Means of verification	$EF_{LPG,CO2}$ – 2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table 2.5). The verified value is: 63.1 tCO_2e/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- Wood-to-charcoal conversion factor: Conversion factor for transforming fuel wood into charcoal, TJ firewood/ TJ charcoal

Means of verification	Wood to charcoal conversion factor– IPCC default value (updated NCV value) (https://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf) 9page 1.45). The verified value is: 3.17 TJ firewood/ TJ 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 10%, 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 60 from the beneficiaries in project scenario and the value obtained is: 0.48 tonnes/household/year which was verified from the On site audit /13/ and also

		consistent with the value of the Previous Monitoring Period, verified by team /9/.
	If applicable, has the reported data been cross-checked with other available data?	The assessment team cross verified from other projects in the same host country and found the value similar
	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 /18/. 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, $U_{p,y,}$ (%)

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 95.70% and the value obtained for age group 1-2 is 84.31% and for age group 2-3 is 86.67% . However, the value Weighted average usage rate for this

		monitoring period is 87.94%. This value was accepted after checking the user survey results /5/provided by the CME. And through VVB on site audit /13/ verification checklist /9/, 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 /12/ 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", 87.94%, field team training, end-user training and follow-ups, and an awareness campaign /42/ are all GS4GG-VPA-VER-FORM Page 30 of 61 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 207,770.
	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 /7/
	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	Not Applicable

	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?		
Findings	CAR 1 was raised and resolved.		
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, $LE_{p,y}$, tCO_2e/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 5% as per the applied methodology referring to AMS-II.G. where gross adjustment factor of 0.95 to account for leakages is applied. 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 methodology default value. 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	Not Applicable	

	Appendix 1 to the CDM Project Standard?	
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.	

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 50 %. 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	No finding 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.

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 with 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: 97.13%.
	If applicable, has the reported data been cross-checked with other available data?	Monitoring database records, Usage surveys were checked. The assessment team further verified the values from the on site audit/13/.
	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	No findings were raised.	
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	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 to the GS4GG rules /19/ 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 164 male employees were trained and 121 female employees were trained under the current MP. This was confirmed by the assessment team though the On site visit /13/ and also through the training records participant list /40/ and though employee contracts/11/ 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 285.
	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 were raised.	
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/, GS4GG rule /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	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 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 41.59 minutes/ day. This was verified from the On site visit /13/ of monitoring survey usage and also by the assessment team by reviewing the project monitoring survey sheets/5 /
	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 were 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.	

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 /11/, 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 207,770 with usage rate being 87.94%
	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

Relevant SDG Indicator	**SDG 8: Decent Work and Economic growth**	
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 contracts, payment slips, employee list /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 279 people being employed was verified.
	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	The QA/QC processes were deemed to be appropriate and trustworthy.

	necessary QA/QC processes in place?	
	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?	
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.	

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 552,675.07 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	Not Applicable

	data?	
	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.9.0/28//26/.

Parameters to be covered through monitoring surveys:

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 (KPT):

- $P_{,p,y}$- 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	03/2024 – 06/2024	Annual	Yes

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

KPT survey (by CME) duration:

Technology	Monitoring dates	Monitoring frequency	Monitoring survey applicable for this MP?
ICS	03/2024 – 04/2024	Biennial	Yes

Sample size calculation for different tests

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 174 samples from each age group picked in accordance with methodological sampling requirements. To ensure accurate representation of the entire population, the usage surveys were conducted on 166 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, 234 surveys were conducted which included 166 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:

- GPS coordinates
- Photographs showing general kitchen area /47/

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 /43/ until they found a household available for the surveys.

Results

Usage Survey

	<table><tr><td>Type of survey</td><td>Period of survey</td><td>Actual number of samples Conducted</td><td>Achieved precision</td></tr><tr><td>Usage/monitoring survey</td><td>March 2024 to June 2024</td><td>174</td><td>Not applicable. Minimum sample size of 100</td></tr></table> **Kitchen Performance Tests** <table><tr><td>Stove type</td><td>Period of KPT</td><td>Actual number of samples (N° of stoves) conducted</td><td>Achieved precision</td></tr><tr><td>Jikokoa</td><td>March 2024 to June April 2024</td><td>60</td><td>10%</td></tr></table> Since for the project KPT, the 90/30 precision was followed, and precision attained was 10% the mean bound value was considered for ER calculation. HH's with damaged stoves and with usage rate less than 7 times in a week are considered non-users as verified from the usage survey results /5/ /7/.
Findings	CL 02 was raised and resolved.
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: $ER_y = \sum b,p\ (N_{p,y} * U_{p,y} * P_{p,b,y} * NCV_{b,\ fuel} * (f_{NRB,b,\ y} * EF_{fuel,\ CO2} + EF_{fuel,\ nonCO2})) - \sum LE_{p,y}$ (Equation 1) Where, <table><tr><td>∑b,p</td><td>Sum over all relevant (baseline b/project p) couples</td></tr></table>

$N_{p,y}$	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)
$P_{b,y}$	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 charcoal, 0.0295 TJ/ton)
$EF_{b,CO2}$	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
$EF_{b,nonCO2}$	Non-CO2 emission factor of the fuel that is reduced
$LE_{p,y}$	Leakage for project scenario p in year y (tCO_2e/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 837,105.63 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	CAR 01 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. 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) **SDG-13: Climate Action:** 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. $ERy = \sum b,p\ (Np,y * Up,y * Pp,b,y * NCVb, fuel * (f\ NRB,b, y * EFfuel, CO2 + EFfuel, nonCO2)) - \sum LEp,y$ 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 charcoal, 0.0295 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 (tCO_2e/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 MPII, the project has achieved 1,008,534 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 50% 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 97.13% of respondents perceive air quality improvements at their homes since purchasing and cooking with the project stove as compared to the baseline.

d) <u>SDG-4:</u>

The number of people trained in this monitoring period is, 285 members of staff (casual/contract). Participant lists have been provided as support documents.

e) <u>SDG-5:</u>

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 41.59 minutes per day.

f) <u>SDG-7:</u>

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 207,770. **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. 279 local jobs have been created in this monitoring period. An employee list has been provided as a supporting document. /11/ **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 552,675.07 tons of non-renewable biomass saved in this monitoring period.
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.

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	1,527,571	519,037	1,008,534 tCO_2e ERs
1	No Poverty	0%	50%	50%
3	Good Health and Well-being	0%	97.13%	97.13%

	4	Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university	0	285	285
	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	104.24	62.65	41.59
	7	Ensure access to affordable, reliable, sustainable and modern energy for all	0	207,770	207,770
	8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	0	279	279
	15	Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	837,105.63	284,430.57	552,675.07

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	CAR 01 was raised and resolved.
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 1,008,534 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	Actual values achieved during this monitoring period

			period	
	13	Climate Action	1,237,358 ERs	1,008,534 ERs
	1	No Poverty	51%	50%
	3	Good Health and well being	94.30%	97.13%
	4	Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university	93	285
	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	79	41.59
	7	Affordable and clean energy	220,070	207,770
	8	Decent Work and Economic Growth	304	279
	15	Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	648,441.93	552,675.07
	As the result of the VPA-DD, 1,237,358 tCO_2e were expected to be reduced within a time frame of 09/06/2023 – 01/03/2024 (both days inclusive). However, based on monitoring data, actual emission reductions so far are only 1,008,534 tCO_2e during this monitoring period i.e., 95.45% 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 1, SDG 5, SDG 7, SDG 8, SDG 13 and SDG 15 and higher for SDG 3 and SDG 4.			
Findings	No findings raised.			
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 less than estimates provided in VPA-DD /2/ as the actual number of stoves distributed by the end of the current monitoring period are less than the planned distribution of stoves. Hence SDG 1, SDG 5, SDG 7, SDG 8, SDG 13 and SDG 15 are less compared to ex-ante values for VPA 61 However, the target achieved for SDG 3 and SDG 4 is higher

	than estimated in the VPA-DDs. SDG3 and SDG4 is found higher as a higher percentage reported improvement in health as a result of reduced smoke on the Jikokoa while cooking in the project scenario has been reported as compared to baseline scenario. And For SDG 4 For this MP the PA witnessed more people participating in training that that was anticipated in the ex-ante calculations. This is because the usage monitoring surveys is based on real case situations as reported by households as opposed to estimations and assumptions made in the ex-ante scenario.
Findings	No findings raised.
Conclusion	The CME states that the increase in the training /40/ generation for the VPAs will be beneficial for the society. Therefore, it has been accepted by the verification team, justification was sought from the PD because the achievement of emission reductions was 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 /12/ 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. /39/ This section is not applicable.

SECTION F. Internal quality control

The draft 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 Limited.

SECTION G. Verification opinion

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 09/06/2023 to 01/03/2024 (both dates inclusive), as reported in the Monitoring Report, Version 3.1 dated 24/12/2024. 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 3.1.0", the monitoring plan contained in the VPA-DD and Monitoring Report Version 3.1 dated 24/12/2024.

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

Earthood 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 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 3.1 dated 24/12/2024. Earthood, based on outcome of verification activities, certifies in writing that, during the monitoring period 09/06/2023 to 01/03/2024 (inclusive of both the dates), the registered GS PoA "ECOA_BURN multi country Clean Cooking Programme" achieved the verified amount of 1,008,534 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 09/06/2023 till 31/12/2023	778,120
From 01/01/2024 till 01/03/2024	230,414
Total	1,008,534 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
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
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
QA/QC	Quality Assurance and Quality control
GS4GG	Gold Standard for Global Goals

Appendix 2. Competence of team members and technical reviewers

Competence Statement	
Name	Vishnu S Panicker
Education	M.Sc (Sustainable Development and Environment Management) B.Sc (Forestry)
Experience	1+ years
Field	Forestry and Environment

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 1.2, 3.1)		
Reviewed by	Shifali Guleria, Quality Manager	**Date**	09/06/2023
Approved by	Deepika Mahala, Technical Manager	**Date**	09/06/2023

Competence Statement			
Name	Akanksha Sengupta		
Education	M.Sc Environmental Studies, University of Delhi B.Sc Zoology, Hans Raj College, DU		
Experience	1 year		
Field	Environment Science and Policy		
Approved Roles			
Team Leader	NO		
Validator	YES (VM)		
Verifier	YES (VM)		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	YES (T.A. 3.1)		
Reviewed by	Shifali Guleria (Quality Manager)	**Date**	12/07//2024
Approved by	Deepika Mahala (Technical Manager)	**Date**	12/07/2024

Competence Statement	
Name	Diyotima Karfa
Education	B.Tech. Biotechnology M.Sc. Biotechnology
Experience	1 year
Field	Climate Change
Approved Roles	
Team Leader	NO
Validator	YES
Verifier	YES
Local expert	NO
Financial Expert	NO
Technical Reviewer	NO
TA Expert (X.X)	NO

Reviewed by	Shifali Guleria (Quality Manager)	**Date**	09/02/2024
Approved by	Deepika Mahala (Technical Manager)	**Date**	09/02/2024

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

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.	Earthood	Validation Report for inclusion of VPA	21/02/2024	Others
4.	BURN Manufacturing Co.	Monitoring Report	Version 3.1 dated 24/12/2024	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 3.1.0, 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.	Earthood	On- site audit interviews	15/07/2024 to 19/07/2024	
14.	BURN Manufacturing co.	Request_Burn_NCVfuel_HH		VVB
15.	IPCC	IPCC default 2006, volume 2, chapter 1 (Table 1.2)	-	Others
16.	BURN Manufacturing	MCMOU CONFIDENTIAL CONTRACT	Dated 31/04/2021	Others

	co.			
17.	BURN Manufacturing co.	fNRB Report	-	Others
18.	BURN Manufacturing co.	Calibration Certificates Weighing Scale Wood Moisture Meters	-	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	UNFCCC	VVS for PoA	Version 3.0	Others
23.	UNFCCC	PS for PoA	Version 3.0	Others
24.	UNFCCC	CDM Project Standard (PS)	version 3.0	Others
25.	UNFCCC	CDM guidelines for Sampling and surveys for CDM project activities and programmes of activities	Version 9.0	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 Inventories), volume 2, chapter 4, Table 4.3.3	-	Others
35.	Clean Cooking Alliance	https://www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html	-	Others

36.	BURN	Weighing Scale Receipts	-	CME
37.	BURN	Product Flyer	-	CME
38.	BURN	Stove Receipt in Nigeria	-	CME
39.	BURN	VPA61_Nigeria_Grievance Mechanism Book	-	CME
40.	BURN	Training Participant List	-	CME
41.	BURN	Nigeria_VPA61_Monitoring Training _Signed Attendance list	-	CME
42.	BURN	Evidence of End User Awareness : 1. Activator Demonstrations (Photographs and Audio) 2. Billboard Hoardings 3. Household follow up training Photographs 4. Radio Advertisement Clipping 5. Social Media 6. TV Advertisement video clipping	-	CME
43.	By Susanna B. Berkouwer and Joshua T. Dean	Randomized control Trial Report	-	CME
44	BURN	• 16JULY2024_GS19789_Nigeria_VPA61_Home visit • 17JULY2024_GS19789_Nigeria_VPA61_Home visit 2	-	CME
45.	BURN	• 18JULY2024_GS19789_Nigeria_VPA61_Promotional video 1	-	CME
46.	BURN	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				
There is no Far from the previous verification.				
CME response				**Date :** DD/MM/YYYY
NA				
Documentation provided by CME				
NA				
VVB assessment				**Date:** DD/MM/YYYY
NA				

TABLE 2. CL FROM THIS VERIFICATION

CL ID	01	**Section no.**		**Date :** 11/07/2024
Description of CL				
1. Under section A.1 of the MR and under section B.1; The total number of cookstoves distributed/ installed till the end of MP2 is mentioned as 2236,262 and 236,232 respectively. PD shall clarify the inconsistency and revise. 2. Under section D.2 Data and Parameters monitored of the MR, Parameter ηnew mentioned in VPA-DD is missing from parameter monitored. PD is requested to clarify. 3. The Kitchen Performance test survey dates mentioned in MR Page 46 are not in line with Project_survey_KPT in ER sheet. PD is requested to clarify why Mar to june 2024 is mentioned in the MR while in the ER sheet tab Project_survey KPT; column A & B mentions the start date and end date of the Project KPT to be from Mar to Apr 2024. 4. As per section A.1, “Carbon financing has been used to subsidize the project stove costs by up to 56% (a reduction in the stove price from $31 to $14). ” while the sales receipt mentions the price at which the stove was bought to be NGN 12500 or 7$ (July 2024). PP shall clarify the inconsistency in the value at which the stoves were sold.				
Project participant response				**Date :** 18/07/2024
1. The typo error in section B.1 has been corrected now. 2. The parameter ηnew needs to be determined to account to determine the efficiency of project stoves in project scenario when ageing test through annual WBTs are done as per Annex 8 of the methodology instead of biennial KPTs. However, there is no need to monitor this parameter in case that biennial project KPTs are conducted, since in this case the KPTs capture the total project fuel consumption on all stoves, i.e. also includes the fuels consumed on any baseline stoves. This is evident from the worksheet ‘Project_Survey_KPT’ of the ER calculation sheet, where all fuels used in a HH kitchen are captured during project KPT irrespective of whether it is used in a baseline or a project biomass stove or any other stove using a different fuel. 3. Dates for the KPT have been corrected in the revised MR. 4. Initially, in Nigeria, the pricing for Jikokoa was set at NGN 12,500, which equated to $14 based on the exchange rate at that time. However, due to monthly fluctuations in Nigeria's foreign exchange rates, the dollar value of the stove dropped to as low as $7 in February. To counter these fluctuations and retain the original dollar value as per the contract, the local currency price of the stove was increased to NGN 20,000. Sales receipts for stoves distributed at this revised price have been submitted to the VVB for review.				
Documentation provided by project participant				
DOE assessment				**Date:** 25/07/2024

1. The assessment team reviewed the Sections A.1 and B.1 of the revised MR and the total no of stoves distributed in the current MP have been verified by the team and made consistent with the ER sheet, and thus closing this finding. (closed)
2. The verifying team found the justification appropriate as parameter ηnew is to determine the efficiency of project stoves in the project scenario when ageing tests through annual Water Boiling Tests (WBTs) are conducted as per Annex 8 of the methodology, instead of biennial Kitchen Performance Tests (KPTs). The worksheet 'Project_Survey_KPT' in the ER calculation sheet, which captures all fuels used in a household kitchen during the project KPT irrespective of the type of stove, supports this explanation therefore this finding is closed. (closed)
3. The VVB assessment team verified the Kitchen Performance test survey dates through on-site audit and ER sheet to reflect with the revised MR which are now consistent with each other, thus finding is closed. (closed)
4. The verification team reviewed the evidence provided by CME regarding the initial pricing of Jikokoa at NGN 12,500 ($14) and the subsequent price adjustment to NGN 20,000 to counter exchange rate fluctuations. The evidence included sales receipts /38/ for stoves distributed at that time. Consequently, the team deemed the justification satisfactory and formally closed this finding.(closed)

Finding CL 01 is closed

CL ID	02	**Section No.**	On site audit & Usage survey	**Date :** 25/07/2024

Description of CL

1. It was observed from the On site visit that couple of the usage households visited still used the baseline stoves LPG with UIDs : E3YXKP, B3YSNM, E3YJGK, B3Y83S, 153762723, with the frequency of usage between 2 to 4 times a week. PD shall clarify how these have been accounted for calculating the usage of the stoves for cooking meals and thus ERs effected.

Project participant response — **Date :** 29/07/2024

1. Usage of the baseline stoves and the other fuels has been considered and accounted for, in the monitoring survey and project KPT. Please refer to the worksheet, 'Project_Survey_KPT' and 'Project Multifuel KPT', where PP has reported the consumption of the usage of all type of fuels in the survey households.

Documentation provided by project participant

DOE assessment — **Date:** 30/07/2024

1. VVB has assessed the KPT Analysis and confirms the inclusion of stove stacking in calculation of parameter 'Pp,y'. (closed)

Finding CL 02 is closed.

CL ID	03	**Section No.**	ER sheet	**Date :** 02/08/2024

Description of CL

1. The value is inconsistent with ER Sheet tab "baseline and project emissions". Further, round down function has been applied in the same tab while the function has not been applied in the tab "ER Calculation", cell no. C30-33.
2. There were 8 households in the ER sheet tab "Kobo Usage Survey Results" who reported that the stove was not in good condition. However, the sheet does not indicate if these stoves were repaired/replaced and the time taken to resolve/address the grievance. PP shall clarify .
3. Under Tab KOBO usage survey results in the ER sheet, There are 3 households identified in the survey data who reported having 2 stoves. However, only one UID has been mentioned for the households. PP shall clarify:

   a. How the requirement of two stoves was identified for these particular households.

   b. How was it ensured that only one stove of the household was considered for the survey?

Project participant response — **Date :** 03/07/2024

1. PP has applied the conservative approach to avoid any possibility of overestimation to calculate the ERs.
2. Although the end users have not reported any grievances and were using the stoves continuously, as observed by the enumerator regarding some maintenance/repair required in the stove. He reported the stove as not in good working condition in the survey records and informed the CX team. CX team repaired/replaced the defective part on the same day of by the next day. Evidence of the same have been submitted to VVB. Users were using the stove continually and there was no effect on the usage of the stove due to this minor repair.
3. a. End user has purchased the stoves as per their usage requirements. PP has no control on selling one or two stoves per household. However, PP has discounted the fuel usage in the same proportion. Please refer cells 'C41' and 'C42' of ER calculation sheet.

   b. PP has selected the samples through random sampling method and according to that, every stove has equal chances to be selected in the survey samples.

Documentation provided by project participant

DOE assessment	**Date:** 05/07/2024

1. Even though the values in the Tab " "ER Calculation" has been rounded down, The assessment team found the conservative approach to be justified as applied by the CME and was thus accepted by the verification team. (closed)
2. The assessment team reviewed the photos provided as evidence of the stoves repaired and of the survey records and the rationale was found apt. (closed)
3. a. The assessment team accepts the calculation on discounted fuel usage under cells C41, C42 of the ER calculation sheet. (closed)
   b. Simple random sampling was used by the CME which was verified by the assessment team on - site thus equal chances of stoves getting selected was likely. Justification was accepted by the verification team. (closed)

Findings CL 03 is closed.

TABLE 3. CAR FROM THIS VERIFICATION

CAR ID	01	**Section no.**		**Date :** 11/07/2024
Description of CAR				

1. Under Table 1 of the MR – Sustainable Development Contributions Achieved, SDG 4 for the no of people receiving skill development and training is mentioned to be 53, while the ER sheet, Tab SDG calculation, cell no D12 reflects the project estimate to be 285. PD shall address the inconsistency.
2. ER sheet Tab "SDG calculations" SDG 15 - baseline estimate cell no C28 " mentions 837,105.63 while Section E.1 of the MR SDG 15 In the baseline scenario mentions 1,669,394.56 tons. PD is requested to address the inconsistency and revise throughout the report.

3. Section E.1. of the MR, Calculation of baseline value or estimation of baseline situation of each SDG Impact, Stoves Distributed in 2024 ERy is mentioned to be 20,452, which is inconsistent with the value mentioned in the ER sheet ; tab Baseline and project emissions, cell no C52. Please revise.

4. Section E.2. of the MR, Calculation of project value or estimation of project situation of each SDG Impact, Stoves Distributed in 2022: ERy is mentioned to be 413,899 which is inconsistent with the value mentioned in the ER sheet ; tab Baseline and project emissions, cell no C50. Please revise.

5. Similarly, Page 54, Section E.2 of the MR mentions the emission reductions for this MP to be 1,181,089 tCO2e which is inconsistent with the ER sheet tab "Baseline and Project emissions" under cell C53 which mentions 11,81,091 tCO2 . PD is requested to clarify and revise throughout the MR.

6. As mentioned above, Page 50 of the MR- stoves distributed in 2024, the ERy value is mentioned as 20,452, which is inconsistent with the value mentioned in the ER sheet Tab "baseline and project emissions" cell no C52.

7. Page 55, Section E.2 of the MR, mentions SDG 7 calculated as 2112,636, which is inconsistent with the ER sheet tab " SDG calculation" cell no E20 which mentions 2,12,636. PD shall clarify and revise.

Project participant response	**Date :** 18/07/2024

1. The value for SDG 4 has been corrected in table 1 of the revised MR.
2. The value for baseline estimates for SDG 15 has been corrected in section E.1 of the revised MR.
3. The value reported in section E.1 represents the ERs credited from the stoves distributed in 2024. This reported value is consistent with the calculated value in cell G27 of the 'ER calculation' worksheet.
4. The value of calculated ERs reported in section E.2 are the rounded down values and are consistent with the values calculated in 'ER calculation' worksheet.
5. The value of calculated ERs reported in section E.2 are the rounded down values and are consistent with the values calculated in 'ER calculation' worksheet.
6. The value of calculated ERs reported in section E.2 are the rounded down values and are consistent with the values calculated in 'ER calculation' worksheet.
7. The value of SDG 7 reported in section E.2 has been corrected and made consistent with the value mentioned in the ER calculation sheet.

Documentation provided by project participant

DOE assessment	**Date:** 24/07/2024

1. The Verification assessment team, reviewed Table 1 of the MR – Sustainable Development Contributions Achieved, SDG 4 for the no of people receiving skill development and training and found the value consistent between the ER sheet and the revised MR. (closed)
2. The assessment team verified the value of SDG 15 to be 837,105.63 and found it consistent between the revised MR and the ER sheet. (closed)
3. The assessment team needs further clarification as why there is inconsistency between the values of total ERs for stoves distributed in 2022, 2024 and total ERs (tCO2e) between Tab "ER calculation" and Tab "Baseline and Project emissions" PD is requested to address. (open)
4. (open)
5. (open)
6. (open)
7. The verifier reviewed the revised MR and is of the opinion that Section E.2 of the MR mentioning SDG 7 calculated to be 207,770 is now consistent across the MR and ER sheet tab "SDG calculation" cell no E20. (closed)

Project participant response	**Date :** 29/07/2024

3. The value reported in cell G27 of the 'ER calculation' worksheet and section E.1 represents the rounded down value of the ERs credited from the stoves distributed in 2024. Therefore, considering the conservative approach, PD has reported the value of ERs calculated in the worksheet ' ER calculation'.
4. The value reported in 'ER calculation' worksheet and section E.2 represents the rounded down value of the ERs credited from the stoves distributed in 2022. Therefore, considering the conservative approach, PD has reported the value of ERs calculated in the worksheet ' ER calculation'.
5. The value reported in 'ER calculation' worksheet and section E.2 represents the rounded down value of the ERs credited from the stoves distributed in 2022. Therefore, considering the conservative approach, PD has reported the value of ERs calculated in the worksheet ' ER calculation'.
6. The value reported in 'ER calculation' worksheet and section E.2 represents the rounded down value of the ERs credited from the stoves distributed in 2022. Therefore, considering the conservative approach, PD has reported the value of ERs calculated in the worksheet ' ER calculation'.

Documentation provided by project participant

DOE assessment	**Date:** 30/07/2024

3. The assessment team is of the opinion that PD has considered conservative approach for stoves distributed in 2022, 2024 and the total ERs (tCO2e) and in rounding down the values under tab "ER calculation" in the ER sheet. (closed)
4. The assessment team is of the opinion that PD has considered conservative approach for value of the ERs credited from the stoves distributed in 2022. And the values of Er sheet tab :ER calculation is consistent with the MR. (closed)
5. VVB team assessed the value mentioned in ER sheet for emission reductions for this MP and is of the opinion that PD applied conservative approach in determining the values in ER sheet tab" ER calculation" which is consistent with the values in MR (closed)
6. The assessment team deemed the values of stoves distributed in 2024 to be conservative in "ER calculation" tab and thus is consistent with the MR. (closed)

Finding CAR 01 is closed

CAR ID	02	Section no.		Date : 19/12/2024
Description of CAR				
1. PD to revisit and correct the fNRB calculation noting that there is double counting of charcoal as the same is already accounted in the fuelwood data. Further, the density of fuelwood is also to be corrected for African context, noting that the average wood density of the species in Africa as based on FAO database comes to about 0.596 (https://www.fao.org/3/w4095e/w4095e0c.htm). Furthermore, the determination of renewable biomass (RB) too is to be corrected as the underlying assumption of 2.5 km adjacent to roads is not conservative nor consistent with other data reported in the MR wherein the baseline time is cited as 111 minutes/day translating to about 3.7 km for the cited average walking speed of 4 km/hr. Several other studies indicate that the 'Distance to point of collection (km)' could be higher < 5km (https://hal.science/hal-00135780/document)with far distances even \being 5-10 km away (https://www.researchgate.net/publication/371988617_Harvesting_distance_effect_on_tree_species_diversity_in_traditional_agroforestry_landscape_a_case_of_Vhembe_Biosphere_Reserve_in_South_Africa). PD to clarify and correct the fNRB computation. 2. PP shall clarify the difference between 'Registered' and 'Available' status as per Column 'C' of the sheet titled 'Nigeria Assignments'				
Project participant response				**Date :** 19/12/2024
1. PD has now revised the fNRB calculation and updated the charcoal consumption and wood density considering the updated sources. PD has updated the ER calculation sheet applying the revised fNRB value and submitted to VVB for review. 2. During the initial distribution of stoves under this VPA, some stoves were distributed through a B2B approach. For these entries, client information (such as name, mobile number, and address) is not available in the project database. Consequently, these entries are categorized as 'available' in the database. According to the applied methodology TPDDTEC ver. 3.1 (page 29), it is not mandatory to have this information in cases of bulk purchases. For other entries where complete client information is available in the database, these are recorded as 'registered' under column "C" of the worksheet 'Nigeria Assignments'.				
Documentation provided by project participant				
DOE assessment				**Date:**
1. The VVB has reviewed the revised fNRB calculation provided by the PD. The double counting of charcoal has been corrected, and the fuelwood density has been updated to 0.596, consistent with the FAO database for African wood species. Additionally, the determination of renewable biomass (RB) has been revised to reflect a more conservative assumption of a collection radius exceeding 3.7 km, as supported by baseline time and referenced studies. The revised fNRB value and updated ER calculation sheet were verified and found to align with methodology requirements. The corrections are accepted 2. VVB has assessed the sales database and confirms that only the stoves sold through B2B have been marked as 'available'.(closed) CAR 02 is closed.				

TABLE 4. FAR FROM THIS VERIFICATION

FAR ID	01	Section No.	ER sheet Tab (Nigeria Assignments)	Date : 25/07/2024
Description of FAR				
As per paragraph 2.1.1 of the **"REQUIREMENTS FOR MAINTAINING THE TOTAL SALES RECORDS UNDER TPDDTEC METHODOLOGY" V1.0.** PD must maintain records for all new sales with end-user details from the start date of the next crediting period or 01/06/2024, whichever is earlier. The next VVB IS THERFORE REQUESTED TO cross-verify that the project activity complies with the above stated rule clarification, along with the V4.0 of TPDDTEC requirements as mentioned in this rule update.				
Project participant response				**Date :** DD/MM/YYYY

Documentation provided by project participant	
DOE assessment	**Date:** DD/MM/YYYY