

Verification report form for GS4GG Programme of Activity  (Gold Standard for the Global Goals)	
BASIC INFORMATION	
Title of the GS4GG Programme of Activity (PoA)	UpEnergy – Social and Climate Impact Programme
Reference number of the Programmes of Activity (PoA)	GS 10963
Version number of the verification and certification report	2.0
Completion date of the verification and certification report	12/10/2023
GS ID (s) of VPAs under PoA	VPA ID: GS10967, Community Carbon Efficient Cooking Programme - VPA1, GS10968, Community Carbon Safe Water Drinking Programme-VPA2 GS12119, Community Carbon Efficient Cooking Programme – VPA 16
Version number of the monitoring report to which this report applies	1.5
Completion date of the monitoring report to which this report applies	11/10/2023
Monitoring period no. and duration	VPA 1 and VPA 2- 2 nd MP VPA 16- 1 st MP 01/12/2021 – 31/12/2022 (both the days included)
Crediting period of the PoA corresponding to this monitoring period	01/01/2021 – 31/12/2026
Host Party	Uganda
Applied methodologies and standardized baselines	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 03.1 Emission Reduction from safe drinking water supply v1.0
Activity requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Estimated amount of annual average GHG emission reductions		VPA 01: 1,007,227 tCO ₂ e VPA 02: 49,981 tCO ₂ e VPA 16: 632,931 tCO ₂ e		
VPA 1 and VPA 2				
Sustainable Development Goals Targeted	SDG Impact	Total amount of certified SDG impact (as per approved methodology) achieved in this monitoring period		Units/Products
		10967-ICS/EPC	12119-ICS	
SDG 13: Climate Action	Emission Reduction	612,951/ 117	163,503	tCO ₂ e
SDG 1: No Poverty	Percentage of users reporting money savings due to reduction in purchased fuel consumption in project / installed under the project	89.40% / 90%	90	Percentage
SDG 3: Good Health and Well Being	Percentage of users reporting reduction in smoke/PM after shifting to ICS in project	89.40% / 90%	90	Percentage
SDG 5: Gender Equality	Percentage of users reporting time saving due to reduction in collected fuel consumption/cooking time/boiling water	89.40% / 90%	90	Percentage
SDG 7: Affordable and Clean Energy	Number of households with operational stoves	137,738 /18	107,200	Number
SDG 8: Decent Work and Economic Growth	Total number of jobs created	72	72	Number
SDG 12: Responsible Consumption and Production	Percentage of users confirmed less use of fuel for boiling	48.4 % / 61.3%	47.6%	Percentage
SDG 15: Life on Land	Fuelwood eq savings reported by users in the project	1061.57 / 0.18	811.57	Tonnes-equivalent fuelwood/day
VPA 02				
Sustainable Development Goals Targeted	SDG Impact	Total amount of certified SDG impact (as per approved methodology)	Units/Products	

		achieved in this monitoring period	
		12119-ICS	
SDG 13: Climate Action	Emission Reduction	9,064	tCO2e
SDG 1: No Poverty	Percentage of users reporting money savings due to reduction in purchased fuel consumption in project / installed under the project	100%	Percentage
SDG 3: Good Health and Well Being	Percentage of users reporting reduction in smoke/PM after shifting to ICS in project	100%	Percentage
SDG 5: Gender Equality	Percentage of users reporting time saving due to reduction in collected fuel consumption/cooking time/boiling water	98%	Percentage
SDG 6: Clean Water and Sanitation	Number of people/beneficiaries reporting access to WPS	43,283	Number
SDG 8: Decent Work and Economic Growth	Total number of jobs created	72	Number
SDG 12: Responsible Consumption and Production	Percentage of users confirmed less use of fuel for boiling	98%	Percentage
SDG 15: Life on Land	Percentage of users reported Fuelwood equivalent savings in the project scenario	98%	Percentage
Name and UNFCCC reference number of the VVB		Earthood Services Private Limited E-0066	
Name, position and signature of the approver of the verification report		 Dr. Kaviraj Singh Managing Director	

SECTION A. Executive summary

The "UpEnergy – Social and Climate Impact Programme" is focused on making a positive environmental and social impact in Uganda. The program involves providing Improved Cookstoves (ICS), Electric Pressure Cookers (EPC), and Water Purification Systems (WPS) to various users, including households, institutions, and businesses. The primary goal is to reduce the emission of greenhouse gases that result from the use of non-renewable woody biomass and charcoal for cooking and water boiling.

By introducing Improved Cookstoves (ICS), we enhance the efficiency of heat transfer compared to traditional stoves. In addition, the adoption of clean cooking solutions like Electric Cookers eliminates the need for non-renewable biomass or charcoal, effectively reducing greenhouse gas emissions. The Water Purification Systems also play a crucial role by decreasing the reliance on non-renewable biomass for water boiling, thus contributing to a decrease in emissions associated with water treatment.

The program aligns with the TPDDTEC Version 3.1/08/ and Emission Reduction from safe drinking water supply v1.0/09/ methodologies, meeting their specific requirements.

The ongoing verification includes VPAs - GS10967, GS10968, and GS12119. The total annual average emission reductions achieved during this crediting period amount to 785,635 tCO₂e. Among these, 776,454 tCO₂e (612,951 tCO₂e from VPA 1 and 163,503 tCO₂e from VPA 16) are attributed to Improved Cookstoves (ICS), 117 tCO₂e to Electric Pressure Cookers (EPC), and 9,064 tCO₂e to Water Purification Systems (WPS).

The PoA (Programme of Activities) has been officially registered under GS4GG with GSID 10963. Local partners and the UpEnergy Group, which also acts as the Coordinating and Managing Entity (CME), have played pivotal roles in bringing this initiative to fruition.

Scope of Verification

Earthood Services Private Limited is tasked with the responsibility of conducting verification for the Programme of Activities (PoA). The verification process entails a thorough evaluation of the assertions and presumptions outlined in the monitoring report /05/. This assessment is carried out in alignment with the GS4GG criteria, UNFCCC criteria, which encompass a range of guidelines including, but not restricted to, the Gold Standard Principles & Requirements/01/, Gold Standard Programme of Activities Requirements/12/, Gold Standard Community Services Activity Requirements/13/, CDM PS for PoA/03/, CDM VVS for PoA/04/, alongside other pertinent regulations and stipulations that have been established within the framework of the Gold Standard.

Verification Process

This verification is an independent and objective review for determination of the monitored reductions in GHG emissions. The verification includes the implementation and operation of the PoA as reported in the registered PoA-DD, VPA-DDs and monitoring report. The verification process is undertaken by verification team that involves the following:

- The desk review of documents and evidence submitted by the project participant in context of the GS4GG criteria along with reference CDM rules and guidelines issued by CDM EB,
- Undertaking on-site site visit, interview or interactions with the representative of the project participant,
- Reporting audit findings with respect to clarification and non-conformities and the closure of the findings as appropriate.
- Preparing a draft verification report of GS4GG programme of activities period complying with the GS4GG principles and requirements.
- Technical review of the draft verification opinion along with other documents as appropriate by an independent competent technical review team finalization of the verification opinion (this report)
- An independent technical review team reviews the verification report made by the verification team. After the final report is accepted by the Technical Reviewer it is then approved by Earthood Services Private Limited which is processed further according to the GS and CDM procedures.

Conclusion

The review of the monitoring report, supporting documentation and subsequent follow up actions have provided ESPL with sufficient evidence to determine the fulfilment of stated criteria. Earthood is of the opinion that the PoA "UpEnergy – Social and Climate Impact Programme" (GSID: 10963) meets all the GS requirements and has correctly applied the GS approved methodologies TPDDTEC Version 3.1/08/ and Emission Reduction from safe drinking water supply v1.0 /09/

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The GHG emission reductions were calculated correctly based on the approved methodologies "TPDDTEC Version 3.1/08/ and Emission Reduction from safe drinking water supply v1.0 /09/ and the monitoring plan contained in the registered PoA-DD/10/ and VPA-DD /11/.

Earthood Services Private Limited can certify that the emission reductions achieved in the monitoring period 01/12/2021 – 31/12/2022 by VPA 1 & VPA 2 and 01/05/2022 – 31/12/2022 by VPA 16 (both the days included for all 3 VPAs) under GS PoA "UpEnergy – Social and Climate Impact Programme" (GSID: 10963) amount to 785,635 tCO₂e. Therefore, this is being submitted for request for issuance, as per GS4GG and UNFCCC procedures.

Vintage wise split: -

GS 10967 - EPC		Amount achieved
Start Dates	End Dates	VERs
01/12/2021	31/12/2021	09
01/01/2022	31/12/2022	108

GS 10967 - ICS		Amount achieved
Start Dates	End Dates	VERs
01/12/2021	31/12/2021	20,767
01/01/2022	31/12/2022	592,184

GS 10968 - WPS		Amount achieved
Start Dates	End Dates	VERs
01/12/2021	31/12/2021	710
01/01/2022	31/12/2022	8,354

GS 12119 - ICS		Amount achieved
Start Dates	End Dates	VERs
01/05/2022	31/12/2022	163,503

SECTION B. Verification team, technical reviewer and approver**B.1. Verification team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	Panicker	Vishnu	Central Office	Y	Y	Y	Y
2.	Methodological Expert and GS approved auditor.	IR	Guleria	Shifali	Central Office	Y	N	Y	Y
3.	Technical Expert (TA 3.1)	IR	Panicker	Vishnu	Central Office	Y	Y	Y	Y
4.	Local Expert	EI	Khaukha	Julius	Central Office	Y	Y	Y	Y
5.	Verifier	IR	Panicker	Vishnu	Central Office	Y	Y	Y	Y

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6.	Trainee(Verifier)	IR	Gautam	Rahul	Central Office	Y	N	Y	Y
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Technical reviewer and approver of the verification 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 and TA expert to TR	IR	Mahala	Deepika	Central Office
2.	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.	Observational error by monitoring survey staff of CME/VPA implementer while recording the responses of users in relation to survey parameters	High	The survey is conducted for representative samples of population, which may impact the population significantly. Surveyors may be unsupervised at the site.	Verification team randomly selected the samples from CME surveyed sampled ICS, EPC and WPS. The recorded survey forms by CME were checked with VVB on-site audit inspection observations. The verification team also interviewed the monitoring staff and checked their training records.
2.	Error in transferring the recorded data to ER sheet	Medium	The procedure for transferring the recorded break-up sheet readings to the spreadsheet is manual in nature thus increasing the chances of error. However, CME has implemented internal quality checks to ensure prevention of any such potential error in the prepared ER calculation sheets /16/.	The surveying and monitoring personnel assigned for PoA implementation has been trained and certified. The interviews conducted during on-site site survey confirms the regular training as per the monitoring plan and implementation procedures to reduce the risk of oversight or data transfer. All the values in ER calculation sheet have been verified from supporting documents and survey data forms. None of the discrepancies was reported due to transferring of data.
3.	Calculation Errors	Medium	The process is manual and therefore there is potential risk of errors / omissions/misstatements.	All calculations were checked by verification team concerning applicable requirements under various documents viz., methodologies, PoA DD/10/ and VPA-DDs /11/.

C.2. Consideration of materiality in conducting the verification

The examination of the ER sheet confirms that both individual and combined material errors for the PoA have been assessed according to GS (Gold Standard) criteria. The verification team has thoroughly reviewed all data presented in the monitoring report and the emission reduction calculation spreadsheet as outlined in reference /16/. No significant errors, overestimations of emission reductions, omissions, or inaccuracies have been identified.

SECTION D. Means of verification

D.1. Desk/document review

The verification of the information of the PoA was performed through the document review including review of monitoring report /05/ version 1.1 dated 04/08/2023. Additionally, cross checks were performed for information provided in the monitoring report using other source of information, the verification team's sectoral or local expertise and, if necessary, independent background investigations.

The desk review involves:

- A review of the data and information presented to verify their completeness.
- A review of the monitoring plan, the monitoring methodologies including applicable tool(s) and, where applicable, the applied standardized baseline, paying attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures.
- A review of calculations and assumptions made in determining the GHG data and emission reductions.
- 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: 18/07/2023 – 22/07/2023				
	Activity performed on-site	Site location	Date	Team member
	Opening Meeting: Introduction, scope and objective of work, roles and responsibilities of audit team, resources required, and timetable of the onsite audit including venue for closing meeting and any concerns from PP.	Uganda	18/07/2023 – 22/07/2023	Vishnu Panicker, Julius Sam Khaukha
	Implementation and operation of project activity (project boundary, technology, project equipment, monitoring and metering equipment) as per registered PDD/previous verification.			
	Management and monitoring procedures followed at project site.			
	Physical inspection of the project activity: Site visit and interview of monitoring personnel			
	Management and operational system: Documentation, allocation of responsibilities, qualification and training, data recording & archiving, internal audit and management review and emergency procedures.			
	Verification checklist: compliance of monitoring procedures followed at project site with registered PDD and monitoring methodology.			
	Review of monitored data and relevant document in accordance with registered monitoring plan and applied monitoring methodology.			
	Review of ER calculations in accordance with applied methodology and relevant tools.			
	Compilation of the audit findings.			
	Closing Meeting: Submission of the audit findings to the client and agreement on the issues raised and agreement on timelines.			

On site assessment has been conducted for the current verification. The on-site site visit was conducted on 18/07/2023 – 22/07/2023.

The Onsite Audit were considered sufficient by the verification team for the current batch for this issuance and provide the VVB assessment team with enough evidence to arrive at a verification conclusion.

D.3. Interviews

D.3.1. Interviews with CME and VPA Implementers

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Kumarswamy	C K	UpEnergy	18/07/2023 – 22/07/2023	PoA Implementation, Operational and Management Framework, sampling surveys, end-users' feedback, etc. Methodology application, monitoring plan, sampling method, ER calculations	Vishnu Panicker, Julius Sam Khaukha
2.	Anayo	Sheila	UpEnergy	18/07/2023 – 22/07/2023	Methodology application, monitoring plan, sampling method, ER calculations	Vishnu Panicker, Julius Sam Khaukha
3.	Wanyaka	Andrew	UpEnergy	18/07/2023 – 22/07/2023	Monitoring system, training sessions, water quality test, hygiene campaign, etc.	Vishnu Panicker, Julius Sam Khaukha
4.	Barve	Samarth	UpEnergy	18/07/2023 – 22/07/2023	Implementation, Distribution records, database management	Vishnu Panicker, Julius Sam Khaukha

Type of questions asked by VVB to VPA Implementers:

- Role and responsibilities of CME or VPA Implementers in the implementation of PoA
- Monitoring and implementation process of the PoA
- Frequency of training conducted for monitoring personnel.
- How institution received training related to operation of ICS, EPC and WPS unit?
- Any grievance received during current monitoring period.
- Was the Energy meter calibrated and if so please provide the calibration certificates.

All the details collected were found correct and inline to the monitoring plan described in the monitoring report /5/.

D.3.2. Interviews with end-users and Stakeholders

VPA01

No.	Interviewee		Date	Subject	Team member
	End-user's name	Serial Number of ICS			
1.	Maama Tracy	GEEU05616	18/07/2023	VVB onsite survey	Vishnu Panicker, Julius Sam Khaukha
2.	Muwanga Ibra	GPB31590	18/07/2023		
3.	Annet	KTG08567	19/07/2023		

4.	Nakilijja	GPB41077	19/07/2023		
5.	Teopista	GPM58919	19/07/2023		
6.	Namaba Joyce	GPM25705	18/07/2023		
7.	Alum Gloria	GBM06395	19/07/2023		
8.	Nabirye Joy	GPM63973	18/07/2023		

VPA01

No.	Interviewee		Date	Subject	Team member
	End-user's name	Serial Number of EPC			
1.	Nambi Justine	PCK00005	18/07/2023	VVB onsite survey	Vishnu Panicker, Julius Sam Khaukha
2.	Okise Sam	PCK00019	19/07/2023		
3.	Martha Nimusiima	PCK00013	19/07/2023		
4.	Dr Alex Okot Chono	PCK00023	20/07/2023		
5.	Isimu Peace	PCK00012	20/07/2023		
6.	Opio Dan	PCK00002	20/07/2023		
7.	John Lukoma	PCK00010	20/07/2023		
8.	Christine Nabubakye	PCK00032	20/07/2023		

VPA02

No.	Interviewee		Date	Subject	Team member
	End-user's name	Serial Number of WPS			
1.	Doreen	WFP12965	18/07/2023	VVB onsite survey	Vishnu Panicker, Julius Sam Khaukha
2.	Namatovu Jacqueline	WFP00447	18/07/2023		
3.	Nakibelu Emmaculate	WFP05887	20/07/2023		
4.	Namukwaya Ritah	WFP16268	21/07/2023		
5.	Balinda Richard	WFP01736	20/07/2023		
6.	Okiringi Isaac	WFP00088	18/07/2023		
7.	Abubakar Mwanamoiza	WFP09387	19/07/2023		
8.	Binasali Felix	WFP05278	18/07/2023		

VPA16

No.	Interviewee		Date	Subject	Team member
	End-user's name	Serial Number of ICS			
1.	Mwami Robert	GPK24201	21/07/2023	VVB onsite survey	Vishnu Panicker, Julius Sam Khaukha
2.	Ndagile Mariam	GPM94258	19/07/2023		
3.	Namirembe Zaina	GPM147947	19/07/2023		
4.	Namugaya Jalia	GPM151389	19/07/2023		
5.	Nagudi Salama	GPM87341	19/07/2023		
6.	Musisi James	GPM181115	18/07/2023		
7.	Katooko Mary	GPM151742	18/07/2023		
8.	Namusobya Linda	GPM212954	18/07/2023		

Type of questions asked by VVB to end-user:

No.	Questions asked to end-user institutions	Responses Received
1.	To confirm the name of the End-user, number of family members	Details correctly provided

2.	Type of product received and its unique product ID	Details correctly provided
3.	Primary source of water for WPS, Number of meals cooked for ICS & EPC, Questions about Baseline devices.	Details correctly provided
4.	Benefits received from ICS, EPC and WPS unit installed in the households.	Positive
5.	Training received from CME team and monitoring survey confirmation	Positive
6.	Were you invited for Hygiene campaign conducted by CME team and did you attend the campaign?	Positive
7.	Confirmation of having grievance number for outreaching	Positive
8.	Confirmation of the SDGs claimed by the project activity by discussion on the topics such as the money saving, reduction of smoke, fuel usage savings and reduction of time in cooking for the ICS and EPC units distributed to the end-users	Positive
9.	Confirmation of the SDGs claimed by the project activity by discussion on the topics such as the money saving, access to safe water from the project filters, fuel usage savings and reduction of time in boiling of water/ collection of fuelwoods for the WPS units distributed to the end-users	Positive

The end users interviewed during on-site site survey reported that they are happy with the installation of ICS, EPC and WPS system. They expressed positive feedback and listed benefits of using of ICS, EPC and WPS which includes access to safe water in WPS, and lesser consumption of fuel compared to the baseline usage in ICS & EPC. They also reported that they are aware of the grievance mechanism. No negative response was received during the interviews.

D.4. Sampling approach

CME's sampling approach

For the purpose of sampling, CME has followed the CDM guidelines for sampling and surveys for CDM project activities and programmes of activities version 9.0 /14/ which is in-line with the registered PoA-DD /10/. The CME has applied Random Sampling at PoA level for different monitoring parameters as per validated PoA DD /10/ and VPA-DDs /11/. 90/10 confidence precision was applied by CME in the sampling which is appropriate as per the single sampling covering the VPAs within the boundaries of PoA geographical location Uganda. Thus, PoA wide single sampling plan was used by the CME.

However, for current MP, PD has applied the sampling plan in line with applied TPDDTEC Version 3.1/08/ "Emission reductions from Safe Drinking Water Supply" Version 1.0. Please refer section E.6. for details.

VVB's sampling plan:

The VVB has followed Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 9, and applied acceptance sampling in the verification in accordance with para 28. Para 30 and 31 of standard suggests the AQL and UQL and maximum errors which have been followed by the VVB. However, para 38(c) allow to apply different AQL and UQL if the PoA/PA is implemented in LDC. Since Uganda is LDC, VVB has chosen sample size from the table 2 of Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 9 which prescribes minimum sample size and acceptance number for discrepant values. Applying para 38(c), the VVB plans to cover 8 samples to verify the CME's sampling plan.

The current verification is for VPA ID: VPA1, VPA2 and VPA16. The CME has applied VPA wise sampling. The VVB will also apply VPA wise sampling.

The verification team has selected the sample size as 8 institutions with 3 institutions extra as backup for the purpose of on-site inspection to check the acceptability of CME's sampling results or otherwise.

Sample Size:

VPA Ref No.	AQL	UQL	Producer Risk	Consumer Risk	Sample Size; Min	Acceptance No.
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GS10967, GS 10968 & GS12119	0.5%	20%	5%	20%	8	0
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VPA's	VPA01	VPA02	VPA16
Number of samples	ICS -08	EPC- 08	WPS-08

The verification team selected the random samples of CME's sampled records to check the acceptability (or otherwise) of the data for each such record with CME's sample records and determine if the CME's sample records meet the requirements. All the 32 main institutions (8 samples each from ICS & EPC of VPA 01 and 08 samples from WPS of VPA 02 and 08 samples of ICS users of VPA16) sampled for the on-site audit survey were available. Therefore, no institutions from back up were included in the on-site audit survey. During the on-site interviews with end-users, all the details and were found correct and no discrepancies were observed in the monitoring data.

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

Area of verification findings	No. of CL	No. of CAR	No. of FAR
General	-	-	-
Compliance of the monitoring report with the GS4GG monitoring report form	-	-	-
Remaining forward action requests from validation and/or previous verifications	-	-	FAR#01, FAR#02, FAR#03
VPA's considered for verification and covered under this report	-	-	-
Programme of activities	-	-	-
Compliance of the programme implementation with the registered PoA-DD	-	-	-
Implementation and operation of the management system	-	-	-
VPA Implementation	-	-	-
Compliance of the VPA implementation with the included VPA design document	CL#02	-	-
Post-design certification changes	-	-	-
Compliance of the monitoring activities with the registered monitoring plan	-	CAR#03	-
Data and parameters fixed ex ante or at renewal of crediting period	-	CAR#04	-
Data and parameters monitored	CL#01 CL#03	CAR#04	-
Comparison of monitored parameters with last monitoring period	-	-	-
Implementation of the sampling plan	-	CAR#06	-
Assessment of data and calculations of net emission reductions or removals	-	-	-
Calculations of baseline value of each SDG Impact	-	-	-
Calculations of project value of each SDG Impact	-	CAR#01 CAR#02	-
Calculations of leakage GHG emissions	-	-	-
Calculations of net benefits for each SDG Impact	-	CAR#04	-
Comparison of actual SDG Impacts achieved during this monitoring period with estimated value	-	CAR#04 CAR#05	-
Safeguarding principles	-	-	-
Stakeholder Inputs and Legal Disputes	-	-	-
Continuous input and grievance mechanism	-	-	-
Internal quality control	-	-	-
Verification opinion	-	-	-
Others (TR comments)	CL#04	-	-
Total	04	06	03

SECTION E. Verification findings**E.1. General****E.1.1 Compliance of the monitoring report with the GS4GG monitoring report form**

Means of verification	The monitoring report form used is GS4GG Monitoring report template version 1.1 /06/, which is a valid version available at the time of verification. All the sections of the aforesaid form were filled as per the Monitoring report template guide version 1.1 /07/ and all the relevant details were provided in the form.
Findings	No findings were raised.
Conclusion	The monitoring report version 1.1 /05/ has been found to be completed using the valid version of the monitoring report form. The information provided in the monitoring report has been assessed in accordance with the GS4GG principles & requirements version 1.2/01/ and monitoring report template guide /07/.

E.1.2 Remaining forward action requests from validation and/or previous verifications

No FAR has been raised in the previous verification.

E.1.3 VPAs considered for verification and covered under this report

Title and GS reference number of the VPA included in the PoA as of the end of this monitoring period	Is the VPA considered for this verification? (yes/no)	Version of the VPA-DD
GS10967: Community Carbon Efficient Cooking Programme - VPA1	Yes	5.0
GS10968: Community Carbon Safe Water Drinking Programme-VPA2	Yes	5.0
GS12119: Community Carbon Efficient Cooking Programme – VPA 16	Yes	4.0

E.2. Programme of activities**E.2.1 Compliance of the programme implementation with the registered PoA-DD**

Means of verification	The purpose of the PoA “UpEnergy – Social and Climate Impact Programme” is to provide end-users with Electric Pressure Cookers (EPC), energy-efficient cookstoves (ICS) and water purification system (WPS) in Uganda. The monitoring period covered under this verification is 01/12/2021 – 31/12/2022 for VPA1 & VPA2 and 01/05/2022 – 31/12/2022 for VPA 16 (both the days included). The implementation of the PoA has led to reduce the GHG emissions caused using non-renewable woody biomass/ charcoal for clean cooking and safe drinking water. Therefore, distribution of ICS, EPC and WPS under the current PoA has provided access to more efficient cookstoves and safe drinking water with reduced use of non-renewable fuel and equivalent greenhouse gas emissions to the end-users of Uganda. The VPAs under PoA are within the boundaries of PoA location i.e., Uganda. The VPAs covered by the PoA under this monitoring period are VPA 01, VPA02 & VPA 16 corresponding to its GSID GS10967, GS10968 and GS12119. The PoA meets the eligibility criteria of the Gold Standard and has applied applicable methodologies for quantification of GHG emission reductions. The latest and valid versions of the methodologies Emission reduction from Safe Drinking Water Supply, version 1.0 /09/ and TPDDTEC Version 3.1/08/. The CME for the PoA is UpEnergy Group, which distributed the ICS, EPC and WPS technologies by actively engaging with the local partners. The VPA Implementer is UpEnergy group who is responsible for operating VPAs as per CME management system and conduct monitoring and verification. The aforesaid VPAs involve dissemination of Seven types of a. Improved Cookstoves: 1. SHS-BME
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2. SHS-ILF
3. SHS-BOLD
4. TG Stove
5. SpendSmart Stove (SST)
6. EE Stove
7. SHS-PRO

b. **Electric Pressure Cooker:** Model: SmartHome Electric pressure cooker

c. **Water Purification System:**

1. UpEnergy JH-19B Gravity Water filter (Jewin)
2. UpEnergy PEHF521 Gravity Water Filter (Pure Easy)
3. UpEnergy Dayliff

All the deployed systems meet the eligibility requirements of the PoA DD /10/. The details of the systems were verified from the manufacturer's specification /19/ provided by the CME.

Through the on-site survey, the distribution of ICS, EPC and WPS claimed by the CME were checked and found to be in-line with the technical description provided in the registered PoA-DD/10/, VPA-DDs/11/ and monitoring report/05/.

The Verification team assessed the following information to verify the capacity and lifetime of systems under the VPAs:

1. Technical specifications of all the devices under ICS, EPC and WPS issued by technology supplier
2. The WPS installed by the CME were checked by the verification team and found to be in-line with the technical description provided in the registered PoA-DD/10/ and Monitoring report/05/ and manufacturer's specifications /19/.

Also, the verification team checked the implementation status of the project activity through interviewing the CME, the VPA implementer, monitoring personnel and the End-Users as defined in the PoA DD/10/, and monitoring report /05/.

Interview of the monitoring personnel involved in the QA/QC procedures revealed that the procedures mentioned in the PoA DD/10/ are being followed and the training records/20/ regarding the trained personnel were checked.

The project location and coordinates shared by CME were verified using the "Google Map app" and by physical site visit which is found to be in-line with the registered PoA-DD/10/ and MR/05/.

Further, based on the review of sales database (presented in ER sheet)/16/, on-site audit survey observations and interview conducted during the on-site audit survey, the verification team found that:

- The VPA(s) were implemented within the boundary of the PoA as described in the revised accepted PoA-DD/10/.
- The CME is same as that mentioned in the revised accepted PoA-DD/10/
- The implementation and operation of the project activity have been conducted in accordance with the description contained in the revised accepted PoA-DD/10/ and included VPA-DDs/11/.
- All physical features of the VPA proposed in the included VPA-DDs/11/ were in place.

	The project participants/VPA implementer has operated the VPAs as per the included VPA-DDs/11/. An on-site audit survey was conducted by the verification team; 08 units of each technology: ICS, EPC and WPS were surveyed (Total 32). The uniqueness of the cookstoves was established by examining the UID written on each individual cookstove unit. The information of the distributed ICS, EPC and WPS was also verified from the distribution database/21/ which was cross checked for 08 samples of each technology. The emission reductions being claimed during this monitoring period are lesser than the estimated emission reductions in the revised or included VPA-DDs/11/, as given in the table under section E.5. for comparing ex-ante estimated ERs in the VPA-DDs/11/ for the corresponding period with the actual ERs achieved. The VPAs are within the threshold limits of the applied methodologies /08,09/. The monitoring report was compared and verified against the description provided in the revised accepted PoA-DD/10/ and found to be correct. The technical description of the project activity has been verified by assessing the description reported in the monitoring report against the applied methodologies /08,09/ and cross-checked during on-site site interviews. All the information was correctly mentioned in the monitoring report and its corresponding ER calculation sheet /16/. The summary of the implemented PoA and the technology involved are described in the PoA-DD /10/ with sufficient details and clarity. The accuracy of the PoA description was determined based on the on-site interviews with the CME representatives and project personnel as part of verification audit, review of supporting documents (as listed in Appendix 3), and interviews with the end-users. The specification of the installed technologies under each VPA is cross-checked from the manufacturer's specifications at the VPA level. /19/ The assessment team has checked and reviewed the monitoring report with supportive evidence and found the details to be correct. The start date of the monitoring period is 01/12/2021 for VPA-1 & VPA-2 and 01/05/2022 for VPA 16, as per the VPA-DD /11/. The crediting period is 01/01/2021 to 31/12/2025 (VPA 1,2) & 01/05/2022 to 30/04/2027 (VPA 16) which is of 5 years (twice renewal). The monitoring period for this verification is VPA 1 and VPA 2- 01/12/2021 – 31/12/2022 (both the days included) and VPA 16- 01/05/2022 – 31/12/2022 (both the days included). The assessment team checked the previous monitoring report to confirm that there is no overlapping of Monitoring period with the previous verification of the VPA 1 and 2. Achieved emission reductions are 785,635 tCO₂ for the current MP for all three VPAs which have following monitoring period, 01/12/2021 – 31/12/2022 (VPA 1 & VPA 2) and 01/05/2022 – 31/12/2022 for VPA 16. The emission reduction calculation sheet was reviewed, and CME has applied correct formulae and calculated emission reductions in accordance with the applied methodologies /08,09/. The verification team has accessed the VPA 16 (GS12119 inclusion under the PoA 10963) and confirms that VPA 16 is in compliance with the requirements defined for the inclusion of VPAs in the registered PoA. Since the VPA 16 is a regular VPA of real case VPA 01 and follows the framework / requirements set out by the associated real case VPA 01, establishment of baseline scenario and baseline emission calculation/SDG estimation have already been approved by SustainCERT, and Gold standard during design certification. The Verification team has also cross verified during assessment of VPA 16 that the inclusion requirements with paragraph 8.4.11 of the Programme of Activity Requirements have been met and found consistent.
Findings	CL#01 and CL#02 was raised and resolved.

Conclusion	Based on the review of the monitoring report, PoA-DD, VPA-DD, installation database and on-site site visit interviews conducted with the CME, VPA Implementers and end-users, the verification team found that: - The VPAs are implemented within the boundaries of the PoA i.e., Uganda as described in the PoA-DD - The distribution and operation of the PoA has been done in accordance with the description reported in the PoA-DD and included VPA-DD. - The monitoring and implementation process is in line to the VPA-DD, which is further explained in this verification report. - The crediting period of the PoA is of 15 years starting from 01/12/2021 to 31/12/2040. The monitoring period covered under this verification assessment is 01/12/2021 – 31/12/2022 (VPA 1 & VPA 2) and 01/05/2022 – 31/12/2022 for VPA 16. - Achieved ERs are lower than the estimated ERs for all the VPAs
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E.2.2 Implementation and operation of the management system

Means of verification	The monitoring plan, as explained in section C of the monitoring report, has been found in compliance with the requirements of the applied methodologies /08,09/. The roles & responsibility of both CME & VPA implementers are well defined. CME's role is primarily with the documentation at both PoA & VPA level, training of the Implementers confirmed during the on-site interviews with the CME's team. The documentation and record maintenance for each VPA under the PoA is performed by Program Manager. CME is responsible for outreaching, training, and ensuring proper addressal of concerns or grievances made by the end-users related to ICS, EPC and WPS technologies being distributed. Each VPA implementer collected and reported the required data as much as possible to effectively monitor the emission reductions of each VPA in accordance with the monitoring plan in the VPA-DDs. Training records is being maintained by the Program Manager and is also responsible for managing electronic database containing list of units installed/ distributed along with the required end user/ baseline information compiled by customer engagement staff. The database of total sales records for each of the distributed ICS, EPC and WPS is maintained electronically along with the paper records and/or SMS tracking records. The verification team confirmed that the distributed ICS, EPC and WPS units have Unique product ID as confirmed during the on-site surveys. This was found consistent with the information given in the installation database /21/ and it was ensured that double counting is avoided and no distribution took place before the start date of VPAs. The management system maintained by the CME is in place with the PoA DD /10/. All relevant registries including UNFCCC, GS and VERRA have been checked by the Verification team and it is confirmed that the VPA 1,2 &16 has not been registered as an individual Gold Standard or CDM project and/or as a part of any other CDM PoA and/or any other mechanism to avail climate change mitigation benefits. Verification team found that each cookstove distributed under this PoA has the Brand logo, PoA ID and unique serial number on the product. The cookstove photograph stamping logo and unique serial number have been shared with VVB and verified by Verification team.
Findings	CAR#03 was raised and closed.
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, training records /20/ as reported in the monitoring report. The verification team confirms that the monitoring management system of the PoA is in place with the responsibilities properly identified and established.

E.3. VPA Implementation

E.3.1. Compliance of the VPA implementation with the included VPA design document

Means of verification

The registered PoA aims in distribution/installation of the ICS, EPC and WPS in Uganda. The PoA is primarily designed to replace the existing fossil fuel / non-renewable woody biomass-based means of purifying water by installing low emission / emission free Water purification systems to provide safe drinking water. UpEnergy Group is the implementer of the VPAs and has fully implemented the VPAs with the help of Sales and Distribution Partners (SDP). This monitoring report includes the implementation and monitoring of 03 VPAs- VPA GS 10967, GS 10968 and GS 12119 in Uganda.

ER claimed during this monitoring period:

VPAs	Crediting period	Previous MP	Monitoring period	ERs claimed (tCO2)
VPA 01 (ICS)	01/01/2021 – 31/12/2025	01/01/2021 – 30/11/2021	01/12/2021 – 31/12/2022	612,951
VPA 01 (EPC)	01/01/2021 – 31/12/2025	01/01/2021 – 30/11/2021	01/12/2021 – 31/12/2022	117
VPA 02 (WPS)	01/01/2021 – 31/12/2025	01/01/2021 – 30/11/2021	01/12/2021 – 31/12/2022	9,064
VPA 16 (ICS)	01/05/2022 – 30/04/2027	-	01/05/2022 – 31/12/2022	163,503

The type of systems installed under the VPA are as follows:

Type of technology distributed (Service level)	Technology / operating concept	Technology	Implementation level (Cumulative Number of units installed)		Total	MoV
Improved Cookstoves (Households)	Aim to provide clean cooking		VPA1	VPA16	273,189	The total number of ICS distributed by the end of the monitoring period is 273,189 which is verified from the installation database provided in the ER sheet /16/.
		SHS-BME	43600	1		
		SHS-ILF	6755	3419		
		SHS-BOLD	43467			
		TG Stove	1136			
		SpendSmart Stove (SST)	4722			
		EE Stove	8115			
		SHS-PRO	46283	115691		
Electric Pressure Cooker (Household)	Aim to provide clean cooking	SmartHome Electric pressure cooker	20		20	The total number of EPC distributed by the end of the monitoring period is 20 which is verified from the installation database provided in the ER sheet /16/.

	Water Purification System (Household)	Aim to provide clean drinking water	UpEnergy JH-19B Gravity Water filter (Jewin)	228	10,563	The total number of WPS distributed by the end of the monitoring period is 10,563 which is verified from the installation database provided in the ER sheet /16/.
			UpEnergy PEHF521 Gravity Water Filter (Pure Easy)	10177		
			UpEnergy Dayliff	158		
The start date of crediting period, inclusion dates of the VPAs were checked from the GS VPA DDs /11/. The First ICS, EPC and WPS Installation dates were checked from the salesforce database/21/. The implementation of the VPA as mentioned above is within the geographical boundary of PoA-DD /10/, which has been verified through review of lat-long data discussed already in Section E.2.1 above. UpEnergy Group is the CME of the VPA and the VPA Implementer and has been already confirmed during validation. Thus, all the systems have been distributed in line with the VPA DDs/11/. The implementation of the VPAs, as defined in the monitoring report, were assessed through document reviews and on-site survey. The VPAs covered in this PoA is within the geographical boundary of the PoA, which constitutes physical boundary as well. The ICS, EPC and WPS technologies distributed under the PoA is verified as follows. The verification team during the current verification has carried out on-site visit and on-site interviews with the CME/ VPA Implementers to understand and verify the VPA implementation and deviations in the monitoring, if any. It was observed that each ICS, EPC and WPS units distributed was assigned a unique product ID, which ensured that there is no double counting for the technologies distributed in the VPA. The unique product ID on each unit, personal information of unit owners and installation date and supply dates of unit was cross checked with the installation database and monitoring samples data provided in ER calculation sheet /16/ and audit sample data. The operation of the technology was confirmed through on-site interviews of the sampled institutions' representatives during the on-site audit.						
Findings		CL#02 was raised and resolved.				
Conclusion		a) The verification team is of the opinion that physical features of the VPA have been implemented in accordance with the VPA-DD /11/. b) No specific monitoring equipment had to be installed according to the monitoring plan. c) It is also confirmed, through the on-site audit survey and review of the supporting documentation that physical features of the component VPA have been implemented in accordance with the VPA-DD /11/. d) The VPA was also found to be completely operational in line with the VPA-DD /11/. e) The information provided in the relevant sections of the monitoring report appropriately describes the implementation and operational status of the PoA				

E.4. Post-design certification changes**E.4.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline**

Not Applicable

E.4.2. Corrections

Not Applicable

E.4.3. Changes to start date of crediting period

Not Applicable

E.4.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

Not Applicable

E.4.5. Changes to project design of approved project

Not Applicable

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

Means of verification	The monitoring plan outlined in monitoring report /05/ was carefully assessed in relation to the monitoring criteria specified in the applied methodologies /08, 09/, as well as the PoA-DD and VPA-DDs /11/, with specific consideration of the technology employed. Upon conducting this evaluation, it was determined that the monitoring plan adequately encompasses all the essential parameters that need to be observed within the framework of the VPA's design and description. This comprehensive plan ensures accurate quantification of emission reductions as outlined in PoA-DD /10/ and the pertinent methodologies, namely, "Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 03.1" /08/, and "Emission reductions from Safe Drinking Water Supply, version 1.0" /09/.
Findings	CAR#03 was raised and resolved.
Conclusion	The monitoring plan is in line with the approved methodologies that is included in the PoA-DD and VPA-DD /11/.

E.5.1. Data and parameters fixed ex ante or at renewal of crediting period**Cookstoves****EF_{b,CO2} - CO2 emission factor arising from use of fuels in baseline Scenario**

SDG Indicator	13
Means of verification	The parameter represents CO2 emission factor arising from use of fuels in baseline Scenario. CME has applied the parameter value to be 112 tCO ₂ /TJ. The value of the parameter is sourced from the IPCC default value as per 2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table 2.4 and 2.5)/17/. The purpose of the data is to calculate CO2 emission in both baseline and project scenario.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

EF_{b,non-CO2} - Non-CO2 emission factor arising from use of fuels in baseline scenario

SDG Indicator	13
Means of verification	The parameter represents Non-CO2 emission factor arising from use of fuels in baseline Scenario. The parameter value to be 9.46 tCO ₂ /TJ for VPA 16 and VPA01, which is from the IPCC default value considering AR5 GWP. The purpose of the data is to calculate CO2 emission in both baseline and project scenario. Though the value of 37.25 tCO ₂ /TJ has been approved by the GS / SustainCERT in the

	design certified VPA DD (VPA 1), the PD has calculated the emission reductions for the current monitoring period using IPCC value of 9.46 tCO ₂ /TJ for EF _{b,non-CO2} (VPA 1,16), instead the design certified value of 37.25 to be conservative
Findings	CAR#04 was raised and resolved
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

EF_{p,CO2}- CO2 emission factor arising from use of fuels in project scenario

SDG Indicator	13
Means of verification	The parameter represents CO2 emission factor arising from use of fuels project Scenario. CME has applied the parameter value to be 112 tCO ₂ /TJ. The value of the parameter is sourced from the IPCC default value as per 2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table 2.4 and 2.5)/17/. The purpose of the data is to calculate CO2 emission in the project scenario.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

EF_{p,non-CO2}- Non-CO2 emission factor for methane arising from use of fuels in project scenario

SDG Indicator	13
Means of verification	The parameter represents Non-CO2 emission factor arising from use of fuels in Project Scenario. CME has applied the parameter value to be 9.46 tCO ₂ /TJ for VPA 16 and 37.25 for VPA01, which is from the IPCC default value considering AR5 GWP. The purpose of the data is to calculate non-CO2 emission in the project scenario. Though the value of 37.25 tCO ₂ /TJ has been approved by the GS / SustainCERT in the design certified VPA DD, the PD has calculated the emission reductions for the current monitoring period using IPCC value of 9.46 tCO ₂ /TJ for EF _{b,non-CO2} , instead the design certified value of 37.25 to be conservative
Findings	CAR#04 was raised and resolved
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

EF_{el,y}- Emission factor for electricity generation for source j in year y

SDG Indicator	13
Means of verification	The parameter represents Emission factor for electricity generation for source j in year y. CME has applied the parameter value to be 0.1158 tCO ₂ /MWh. The value of the parameter is sourced from the UNFCCC Harmonization of Standards for GHG accounting dated December 2021 /32/. The purpose of the data is to calculate project emission for Electric cooking.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

TDL_{j,y}- Average technical transmission and distribution losses for providing electricity to source j in year y

SDG Indicator	13
Means of verification	The parameter represents Average technical transmission and distribution losses for providing electricity to source j in year y. CME has applied the parameter value to be 0.20 in fractions or 20%. The value of the parameter is sourced from CDM Methodological tool: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, version 03.0/27/. The purpose of the data is to calculate CO2 emission in the project scenario.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

NCV_b- Net calorific value of the fuels used in the baseline

SDG Indicator	13
Means of verification	The parameter represents Net calorific value of the fuels used in the baseline. CME has applied the parameter value to be 0.0156 TJ/ton. The value of the parameter is sourced from IPCC default 2006, volume 2, chapter 1 (Table 1.2)/17/. The purpose of the data is to calculate CO2 emission in both baseline and project scenario.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

NCV_p- Net calorific value of the fuels used in the project

SDG Indicator	13
Means of verification	The parameter represents Net calorific value of the fuels used in the baseline. CME has applied the parameter value to be 0.0156 TJ/ton. The value of the parameter is sourced from IPCC default 2006, volume 2, chapter 1 (Table 1.2)/17/. The purpose of the data is to calculate CO2 emission in both baseline and project scenario.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

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

SDG Indicator	13
Means of verification	The parameter represents Non-renewability status of woody biomass fuel in scenario i during year y. CME has applied the parameter value to be 0.89. The value of the parameter is sourced from Assessment based on CDM Methodological tool 30: Calculation of the fraction of non-renewable biomass, Version 03.0/30/. The purpose of the data is to calculate CO2 emission in both baseline and project scenario. The value of the parameter has been already validated during the registration of the VPAs.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

P_{b,y}- Specific fuel consumption for an individual technology in baseline scenario b during year y converted to tons/day

SDG Indicator	13
Means of verification	The parameter represents Specific fuel consumption for an individual technology in baseline scenario b during year y converted to tons/day. CME has applied the parameter value to be 0.01591 tonnes/day. The value of the parameter is sourced from Baseline survey and KPT/33/ and the value is fixed ex-ante for fuelwood in subsequent issuance/11/. The purpose of the data is to calculate CO2 emission in both baseline and project scenario.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

HHS_{baseline}- Percentage of users reporting money saving due to reduced fuel consumption in baseline

SDG Indicator	1
Means of verification	The parameter represents percentage of users reporting money saving due to reduced fuel consumption in baseline. CME has applied the parameter value to be 0%. The value of the parameter is fixed ex-ante for subsequent issuance/11/. The purpose of the data is to calculate SDG 1 impact.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

HHsmoke_{baseline}- Percentage of users reporting reduction in smoke/PM emissions while cooking on improved stove in baseline

SDG Indicator	3
Means of verification	The parameter represents percentage of users reporting reduction in smoke/PM emissions while cooking on improved stove in baseline. CME has applied the parameter value to be 0%. The value of the parameter is fixed ex-ante for subsequent issuances/11/. The purpose of the data is to calculate SDG 3 impact.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

HHtime_{baseline}- Percentage of users reporting time savings for cooking /fuel collection in baseline

SDG Indicator	5
Means of verification	The parameter represents percentage of users reporting time savings for cooking /fuel collection in baseline. CME has applied the parameter value to be 0%. The value of the parameter is fixed ex-ante for subsequent issuance/11/. The purpose of the data is to calculate SDG 5 impact.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

HHclean_{baseline}- Number of users having access to clean and affordable energy (Number of ICS operating) in baseline

SDG Indicator	7
Means of verification	The parameter represents number of users having access to clean and affordable energy (Number of ICS operating) in baseline. CME has applied the parameter value to be 0. The value of the parameter is fixed ex-ante for subsequent issuance/11/. The purpose of the data is to calculate SDG 7 impact.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

EG_{baseline}- Number of quantitative employment and income generation in baseline

SDG Indicator	8
Means of verification	The parameter represents number of quantitative employment and income generation in baseline. CME has applied the parameter value to be 0. The value of the parameter is fixed ex-ante for subsequent issuance/11/. The purpose of the data is to calculate SDG 8 impact.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

FC_{baseline}- Fuel consumption in baseline

SDG Indicator	12
Means of verification	The parameter represents fuel consumption in baseline. CME has calculated the parameter through following formula: from the average fuel consumption per HH in baseline (tonnes eq. fuelwood/HH/day) ie $0.01591 \times 365 \text{ day} = 5.807 \text{ tonnes/year}$ where HH fuel is determined from Baseline KPT survey/33/. The value applied is 5.807 tonnes/year which is fixed ex-ante for subsequent issuance/11/. The purpose of the data is to calculate SDG 12 impact.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

FC_{HHbaseline}- Average fuel consumption per HH in baseline

SDG Indicator	15
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Means of verification	The parameter represents average fuel consumption per HH in baseline. CME sourced the parameter value from Baseline survey /28/and KPT/33/ and considered it to be 0.01591 tonnes-eq.fuelwood/HH/day. The value of the parameter is fixed ex-ante for subsequent issuance/11/.The purpose of the data is to calculate SDG 15 impact.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

Water Purification System

SDWS2 : Project technological description, the detailed description of the planned project technology

SDG Indicator	13																				
Means of verification	The value for this parameter has been verified from the Manufacturer's specifications /19/.																				
	<table><tr><td>Description</td><td>Jewin</td><td>Pure Easy</td><td>Dayliff</td></tr><tr><td>Manufacturer</td><td>UpEnergy</td><td>UpEnergy</td><td>UpEnergy</td></tr><tr><td>Product Name</td><td>Jewin</td><td>Pure Easy</td><td>Dayliff</td></tr><tr><td>Technology type</td><td>Gravity Filters</td><td>Gravity Filters</td><td>Gravity Filters</td></tr><tr><td>Performance classification</td><td>Complies with WHO Quality standard</td><td>Complies with WHO Quality standard</td><td>Complies with WHO Quality standard</td></tr></table>	Description	Jewin	Pure Easy	Dayliff	Manufacturer	UpEnergy	UpEnergy	UpEnergy	Product Name	Jewin	Pure Easy	Dayliff	Technology type	Gravity Filters	Gravity Filters	Gravity Filters	Performance classification	Complies with WHO Quality standard	Complies with WHO Quality standard	Complies with WHO Quality standard
	Description	Jewin	Pure Easy	Dayliff																	
	Manufacturer	UpEnergy	UpEnergy	UpEnergy																	
	Product Name	Jewin	Pure Easy	Dayliff																	
	Technology type	Gravity Filters	Gravity Filters	Gravity Filters																	
	Performance classification	Complies with WHO Quality standard	Complies with WHO Quality standard	Complies with WHO Quality standard																	
The evidence /19/ shared by the CME has been reviewed and it was found that project technological description is correctly reported in monitoring report /05/.																					
Findings	No findings were raised.																				
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/. The value applied is correct and justified.																				

SDWS 4 : Regulatory framework for safe water supply, National, sub-national and local regulations or guidance for safe drinking water supply, operation and maintenance, including any tariff requirements in host country Uganda

SDG Indicator	13
Means of verification	The project does not undermine or conflict with any national, sub-national and local regulations or guidance for safe drinking water supply, operation and maintenance, including any tariff requirements. Further, the national standards and local regulations for safe drinking water supply do not impose any cap on parameters used by the methodology and therefore have no implications on emission reduction calculations. The VPAs are in line with all the local and national Safe Water guidelines/29/.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/. The value applied is correct and justified.

SDWS 5 : Water resources in the project activity, Improved and Unimproved drinking water sources in Uganda

SDG Indicator	13		
Means of verification	Baseline survey		
	S.No	Drinking water source	Percentage of availability
	1.	Unprotected Well	~14%
	2.	Municipality Water	~71%
	3.	Borewell	~13%
	4.	River	~1%

	5.	Pond/Lake/any stagnant body of water	~1%	
	The value for this parameter is different for improved and unimproved drinking water sources in Uganda. The value is sourced from baseline survey sheet /28/			
Findings	No findings were raised.			
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the VPA-DD /11/. The value applied is correct and justified.			

SDWS 6 : Stove technologies used in the project boundary; The proportion of different stove types used in premises in the geographical area of the project. If the project covers different types of end-users premises (e.g. households, institutions), then the stoves technologies should be determined for each premises type.

Should be determined for each premise type:													
SDG Indicator	13												
Means of verification	The data of the parameter has been sourced from the Baseline survey/28/												
	<table><tr><td>S.no</td><td>Stove Technology</td><td>End-users (%)</td></tr><tr><td>1</td><td>Three-stone fired firewood</td><td>27%</td></tr><tr><td>2</td><td>Traditional Charcoal system without grate or/and chimney</td><td>65%</td></tr><tr><td>3</td><td>Improved cookstove</td><td>8%</td></tr></table>	S.no	Stove Technology	End-users (%)	1	Three-stone fired firewood	27%	2	Traditional Charcoal system without grate or/and chimney	65%	3	Improved cookstove	8%
	S.no	Stove Technology	End-users (%)										
	1	Three-stone fired firewood	27%										
	2	Traditional Charcoal system without grate or/and chimney	65%										
3	Improved cookstove	8%											
The values are used to calculate baseline emission. The value is sourced from baseline survey sheet /28/.													
Findings	No findings were raised.												
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the VPA-DD /11/. The value applied is correct and justified.												

SDSW 7 : Expected technical life of project technology, The expected technical life of an individual project technology shall be defined in the PDD. The details include both technology/device life and filter life, if a filter is used and it is replaceable.

SDG Indicator	13			
Means of verification	The expected technical life of the project technology is in accordance with the manufacturer's specifications /19/ and has been correctly reported in monitoring report /05/.			
	Description	Jewin	Pure Easy	Dayliff
	Treatment Volume (Ltrs)/ Filter life	2400	5000	5000
Findings	No findings were raised.			
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the VPA-DD /11/. The value applied is correct and justified.			

SDWS 9 : EF_{b, f, CO2}, CO2 emission factor from use of fuels

SDG Indicator	13
Means of verification	Following are the values applied under this parameter Wood = 112 Tco2/TJ Charcoal = 165.22 Tco2/TJ (includes charcoal production emissions) The value for this parameter is sourced from IPCC default value for wood and charcoal: IPCC 2006 Guidelines for National Greenhouse gas inventories /17/.
Findings	No findings were raised.

Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/. The value applied is correct and justified.
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SDWS 10 : $EF_{b, f, nonCO_2}$, Non-CO₂ emission factor from use of fuels, in case the baseline fuel is biomass or charcoal

SDG Indicator	13
Means of verification	Following are the values applied under this parameter AR5 GWP - Wood: 9.46 tCO₂e/TJ - Charcoal: 44.83 tCO₂e/TJ (includes production emissions of CH₄ and N₂O) The value for this parameter is sourced from IPCC default value for wood and charcoal: IPCC 2006 Guidelines for National Greenhouse gas inventories /17/.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the VPA-DD /11/. The value applied is correct and justified.

SDWS 11 : η_{wb} , Weighted average efficiency of the baseline water boiling devices.

SDWS 11 : 1 _{WB} , weighted average efficiency of the baseline water boiling devices.		
SDG Indicator	13	
Means of verification	The parameter calculates the weighted average of the baseline water boiling devices.	
	S.no	Stove Technology
	1	Three-stone fire without either a grate or a chimney
	2	Three-stone fire for charcoal
	3	Improved cookstoves
	Efficiency (%)	10
		16
		37.9
	The values used for calculation has been sourced from baseline survey data /28/.	
Findings	No findings were raised.	
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the VPA-DD /11/. The value applied is correct and justified.	

SDWS 12 : C_b , Proportion of project end-users who in the baseline were already using safe water, either from an improved water source, or from a water treatment method other than boiling.

SDG Indicator	13
Means of verification	The value 5.51% applied in this parameter is the proportion of project end-users who in the baseline were already using safe water, either from an improved water source, or from a water treatment method other than boiling. The value has been sourced from baseline survey data /28/. In the baseline assessment it was 127 number of HHs who were using improved water sources, out of the total 150 HH and the PD could test 48 raw water samples representing only 120 HHs by the above-mentioned methodology. Since the PD could represent only 120 HHs instead of 127 HHs, there might be possibility of water from non-tested improved sources to be safe to drink. To account for this gap, PD has considered these 7 HHs as safe to drink in the baseline scenario by adjusting parameter (C_b) value to 5.51% (i.e. 07/127) from the project activity
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the VPA-DD /11/. The value applied is correct and justified.

SDWS 8 : X_f , The proportion of each different cooking fuel f used in the project boundary by end-users:

SDG Indicator	13
Means of verification	The fuel used in the project location are wood and charcoal. The values are used to calculate baseline emission. The value is sourced from baseline survey sheet /28/.

	S.no	Baseline Fuel Usage	End-users (%)	
	1.	Three stove fire	27	
	2.	Traditional Charcoal	65	
	3.	Improved Charcoal Cookstove	8	
Findings	No findings were raised.			
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the VPA-DD /11/. The value applied is correct and justified.			

SDWS 21 : $f_{nr,f,y}$, Fractional non-renewability status of woody biomass fuel during year y, in case the baseline fuel is biomass or charcoal

SDG Indicator	13
Means of verification	This parameter is referred to fractional non-renewability status of woody biomass fuel during year y in case the baseline fuel is biomass or charcoal. The value applied is 0.89 which is confirmed from the CDM Methodological tool 30: Calculation of the fraction of non-renewable biomass, Version 03.0 /30/.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the VPA-DD /11/. The value applied is correct and justified.

SDWS 14 : NCV_f , Net calorific value of fossil fuel f

SDG Indicator	13
Means of verification	This parameter is referred to net calorific value of fossil fuel f and is used for calculation of project emission. The value 0 has been taken as there is no usage of fossil fuel in the project scenario.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the VPA-DD /11/. The value applied is correct and justified.

SDWS 15 : EF_f , Emission factor of fossil fuel f

SDG Indicator	13
Means of verification	This parameter is referred to Emission factor of fossil fuel f and is used for calculation of project emission. The value 0 has been taken as there is no usage of fossil fuel in the project scenario.
Findings	No findings were raised.
Conclusion	The parameter has been not used in the present monitoring period.

SDWS 16 : EF_{ec} , Emission factor associated with the electricity use

SDG Indicator	13
Means of verification	This parameter is referred to Emission factor associated with the electricity use. But the project devices don't use electricity, hence the value is not applicable for the current monitoring period.
Findings	CAR#04 was raised and resolved
Conclusion	The parameter has been not used in the present monitoring period.

SDWS 17 : TDL_{ec} , Transmission and distribution losses associated with the electricity use

SDG Indicator	13
Means of verification	This parameter is referred to Transmission and distribution losses associated with the electricity use. The value applied is 20% and has been sourced from default value mentioned in the VPA-DD/11/ and is used for the calculation of project emissions.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the VPA-DD /11/. The value applied is correct and justified.

HHS_{Baseline} No Poverty: Percentage of users reported reduced money spent on fuel consumption in baseline scenario)

SDG Indicator	1
Means of verification	The parameter represents percentage of users reported reduced money spent on fuel consumption in baseline scenario. This VPA aim at distributing WPS to the households of Uganda thereby replacing the baseline method of boiling of water for consumption. Thus, CME assumes the parameter value to be zero as none of the households were having WPS in the baseline scenario. The value of the parameter is sourced from the Baseline survey/28/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/ and VPA-DD /11/. The value applied is correct and justified.

HHclean_{Baseline} Good Health and Well Being: Percentage of users using clean technology to access safe water in baseline scenario

SDG Indicator	3
Means of verification	The parameter referred to percentage of users using clean technology to access safe water in baseline scenario). CME assumes the parameter value to be zero as none of the households were having WPS in the baseline scenario. The value of the parameter is sourced from the Baseline survey/28/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/. The value applied is correct and justified.

HHtime_{Baseline} Gender Equality: Percentage of users reporting time savings for boiling/fuel consumption/access to water

SDG Indicator	5
Means of verification	The parameter referred to percentage of users reporting time savings for boiling/fuel consumption/access to water. CME assumes the parameter value to be zero as none of the households were having WPS in the baseline scenario. The value of the parameter is sourced from the Baseline survey/28/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/. The value applied is correct and justified.

BENclean_{Baseline} Clean Water & Sanitation: Beneficiaries with access to safe water in baseline scenario

SDG Indicator	6
Means of verification	The parameter referred to beneficiaries with access to safe water in baseline scenario. CME has applied the parameter value to be zero. The value of the parameter is sourced from the Baseline survey/28/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/. The value applied is correct and justified.

EG_{Baseline} Decent Work and Economic Growth: Generation of employment in baseline scenario

SDG Indicator	8
Means of verification	The parameter referred to generation of employment in baseline scenario. CME has applied the parameter value to be zero. The value of the parameter is sourced from the Baseline survey/28/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system

Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/. The value applied is correct and justified.

FC_{Baseline} Responsible Consumption and Production: Percentage of users confirming boiling using fuel in baseline scenario

SDG Indicator	12
Means of verification	The parameter referred to percentage of users confirming boiling fuel used in baseline scenario. CME has applied the parameter value to be 100%. The value of the parameter is sourced from the Baseline survey/28/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/. The value applied is correct and justified.

FRC_{Baseline} Life on Land: Percentage of users reported fuelwood equivalent savings in baseline scenario

SDG Indicator	15
Means of verification	The parameter referred to percentage of users reported fuelwood equivalent savings in baseline scenario. CME has applied the parameter value to be zero. The value of the parameter is sourced from the Baseline survey/28/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system
Findings	No findings were raised.
Conclusion	The value in the monitoring report /05/ and ER calculation sheet /16/ are consistent with the PoA-DD /10/. The value applied is correct and justified.

E.5.2. Data and parameters monitored

Cookstoves/EPC

P_{P,y} Specific fuel consumption for an individual technology in project scenario p during year y converted to tons/days

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Every 2 years
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	VPA 1: 0.00820 tonnes/day VPA 16: 0.00834 tonnes/day The verification team confirmed the value from the Project Kitchen Performance Test/33/. KPT was carried out in accordance with Annex 4 of the applied methodology TPDDTEC/08/. The end-users selected during through acceptance sampling were also checked for the details mentioned in the database. The information was found to be consistent between the database and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of	Yes

	emission reductions and are necessary QA/QC processes in place?	
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan /11/ and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

U_{p,y} Usage rate in project scenario p during year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	VPA 1: 89.4% VPA 16: 90.0% The verification team confirmed the value from the Annual usage Survey/34/. The end-users selected during through acceptance sampling were also checked for the details mentioned in the database/21/. The information was found to be consistent between the database and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
	In case project participants have deviation from gold standard?	NA
Findings	CAR#04 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan /11/ and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

N_{p,y} Technologies in the project database for project scenario p through year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Continuous
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	VPA 1: - ICS: 154,078 VPA 16: - ICS: 119,111 EPC: 20 The verification team confirmed the value from the Total Sales Record/21/. The value is used for calculating the emission reductions.

		The end-users selected during through acceptance sampling were also checked for the details mentioned in the database. The information was found to be consistent between the database and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
	In case project participants have deviation from gold standard?	NA
Findings	CL#01 and CAR#04 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan /11/ and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

LE_{p,y} Leakage in project scenario p during year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Every two years
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	VPA 1 and 16: 0 tCO ₂ / year The verification team confirmed the value from the Baseline and Monitoring survey/28,34/. The value is used for calculating the emission reductions. The value is taken 0 as the potential leakage reasons have been listed in the MR according to the paragraph 3.11.3 of TPDDTEC/08/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan /11/ and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

μ_y : Adjustment to account for any continued use of pre-project devices (baseline stove) in the project scenario during the year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA

	How were the values in the monitoring report verified?	The verification team confirmed the value can be sourced from the Monitoring/usage survey/34/. The value of parameter is captured and Parameter Pp.y to account for the usage of baseline stoves.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been not used in the present monitoring period.	

EG_{P.d.y} : Quantity of electricity consumed by the project electricity consumption source j in year y

Means of verification	Criteria/Requirements	Assessment/Observations		
	SDG Indicator	13		
	Measuring /Reading /Recording frequency	Annual		
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes		
	Monitoring equipment	Energy Meter, Accuracy 0.02		
		Sr.No	Calibration date	Validity date
		0423433459	21/09/2021,08/09/2022	20/09/2022,07/09/2023
		0423433456	21/09/2021,08/09/2022	20/09/2022,07/09/2023
		0423433458	21/09/2021,08/09/2022	20/09/2022,07/09/2023
	How were the values in the monitoring report verified?	VPA 1: 4.36 MWh/yr The verification team confirmed the value from the ER sheet/16/. The value is used for calculating the project emissions. The quantity of electricity consumed by project activity is determined by conducting 3-days consecutive kitchen performance test. The 3 days value is extrapolated to a whole year. VVB has also checked and found the calibration of the meter to be met according to the requirement and this has been discussed and verified during the interview with the PD. The end-users selected during through acceptance sampling were also checked for the details mentioned in the database. The information was found to be consistent between the database and the VVB survey.		
	Does the data management ensure correct transfer of data and reporting of emission reductions	NA		

	and are necessary QA/QC processes in place?	
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan /11/ and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

H_{p,y} : Project technology-hours in the project database for project scenario p through year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	NA
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	NA
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The parameter is not considered for the monitoring period as PD chose to do direct measurement method and used rate wattage for current monitoring period
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been not used in the present monitoring period.	

P_{ep,y} : Quantity of fuel consumed by the baseline technology in the project scenario in year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	VPA 1 – 0.00616 Tonnes/day The verification team confirmed the value from the ER sheet/16/. The value is used for calculating the project emissions. The quantity of single project fuel consumed by project technologies of each age being credited, this is done in the Kitchen Performance Test. VVB has confirmed the value from the KPT done for the EPCs in the ER sheet provided. The end-users selected during through acceptance sampling were also checked for the

		details mentioned in the database. The information was found to be consistent between the database and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan/11/ and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

n_{new,i}: Efficiency of the project cookstove

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	Value applied is NA The verification team confirmed that since no WBT was conducted for this monitoring period and all the values for the technology was based on KPT reports/33/. Hence the value of the parameter is NA. VVB has checked the technical specifications of the cookstoves to check the design efficiency of all the stoves.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been not used in the present monitoring period.	

HHS_{project}: Percentage of households confirming money saving with improved cookstove

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	1
	Measuring /Reading /Recording frequency	Continuous
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	VPA 1 : 89.40% for ICS and 90% for EPC VPA 16: 90.0% for ICS The verification team confirmed the value from the Database/21/. The value is used for

		monitoring of SDG 1. The number of clean energy products distributed are recorded as part of the CME database which will be used to estimate this parameter. The end-users selected during through acceptance sampling were also checked for the details mentioned in the database. The information was found to be consistent between the database and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan/11/ and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

HHsmoke_{project}: Percentage of households confirming less smoke with the use of improved cookstove

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	3
	Measuring /Reading /Recording frequency	Once every 2 years (biennially)
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	VPA 1 : 89.40% for ICS and 90% for EPC VPA 16: 90.0% for ICS The verification team confirmed the value from the monitoring survey/34/. The value is used for monitoring of SDG 3 and monitored by asking the users if there is less smoke with the use of improved stove. The end-users selected during through acceptance sampling were also checked for the details mentioned in the database. The information was found to be consistent between the database and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan/11/ and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

HHtime_{project}: Percentage of households reporting time saving associated with cooking and fuel collection

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	5
	Measuring /Reading /Recording frequency	Once every 2 years (biennially)
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	VPA 1: 89.40% for ICS and 90% for EPC VPA 16: 90.0% for ICS The verification team confirmed the value from the monitoring survey/34/. The value is used for monitoring of SDG 5 and monitored by asking the users if there have been able to save time with the use of improved stove. The end-users selected during through acceptance sampling were also checked for the details mentioned in the database. The information was found to be consistent between the database and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan/11/ and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

HHclean_{project}: Access to affordable and clean energy (Number of ICS operating)

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	7
	Measuring /Reading /Recording frequency	Continuous
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	VPA 1 : ICS: 137,738 and EPC: 18 VPA 16 – ICS: 107,200 The verification team confirmed the value from the CME Database/21/. The value is used for monitoring of SDG 7 and estimated by using the number of improved cookstove recorded in the CME database. The end-users selected during through acceptance sampling were also checked for the details mentioned in the database. The information was found to be consistent between the database and the VVB survey.

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	CAR#01 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan/11/ and applied methodology/08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

EG_{project}: Total no of jobs created

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	8
	Measuring /Reading /Recording frequency	Continuous
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	72 The verification team confirmed the value from the CME Database/21/. The value is used for monitoring of SDG 8 and CME maintains the record of job created. The information was found to be consistent between the database and the VVB survey. CME has provided 'Employment record" showing the number of People employed and this was found satisfactory by the Verification team
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	CL#03 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan/11/ and applied methodology/08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

FC_{project}: Consumption of non-renewable biomass per household

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	12
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	VPA 1 : ICS: 2.99 & EPC: 2.25 VPA 16 : ICS: 3.04 The verification team confirmed the value from the KPT/33/. The value is used for monitoring of

GS4GG-PoA-VER-FORM

		SDG 12 and SDG 15. CME maintains the record during KPT conducted in HH. The end-users selected during through acceptance sampling were also checked for the details mentioned in the database. The information was found to be consistent between the database and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan/11/ and applied methodology/08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

FCHH_{project}: Average Fuel consumption per household in project scenario

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	15
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	VPA 1: ICS: 0.00820 tonnes eq.fuelwood/day EPC: 0.00616 tonnes eq.fuelwood/day VPA 16: ICS: 0.00834 tonnes eq.fuelwood/day The verification team confirmed the value from the Monitoring survey/34/. The value is used for monitoring of SDG 12 and SDG 15. The end-users selected during through acceptance sampling were also checked for the details mentioned in the database. The information was found to be consistent between the database and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan/11/ and applied methodology/08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

Water Purification System

QPW_p Volume of drinking water per person per day for premises type p

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Every 2 years if water consumption field test is conducted
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	4.00 litres/person/day The parameter accounts for Volume of drinking water per person per day for premises type p PD has applied the default value per person (Option 1). The end-users interviewed during on-site audit(08 samples) confirmed that none of the households boil water for drinking purpose and they only consume water purified from distributed WPS unit. The information was found to be consistent between the CME survey and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Water consumption field tests would be compared with qualitative response of the users on the usage frequency/quantity and household size but the default value of 4.00 liters/person/day is chosen.
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

q_i Capacity of the household or institutional water treatment technology

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Continuous
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	1.967 litres/hour The parameter accounts for Capacity of the household or institutional water treatment technology.

		Manufacturer specification/19/ were checked and found to be consistent with the ER sheet /16/. VVB has conducted acceptance sampling to verify the CME survey results. The end-users interviewed during on-site audit (08 samples) confirmed that none of the households boil water for drinking purpose and they only consume water purified from distributed WPS unit. The information was found to be consistent between the CME survey and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

X_{cleanboil,y} **Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology in year y**

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The parameter accounts for Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology in year y. The value of the parameter is 0% as no one would be boiling water in the project scenario. Surveys forms/34/ were checked and found to be consistent with the ER sheet/16/. VVB has conducted acceptance sampling to verify the CME survey results. The end-users interviewed during on-site audit(08 samples) confirmed that none of the households boil water for drinking purpose and they only consume water purified from installed WPS unit. The information was found to be consistent between the CME survey and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of	NA

	emission reductions and are necessary QA/QC processes in place?	
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

$M_{q,y}$ Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country.

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The value of the parameter is 1 The parameter represents Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country. The number of end-users under the sampled data (acceptance sampling) was cross-checked during on-site site survey and found correct. The verification team confirms that value reported in the ER sheet is correct.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Field testing kits using Most Probable Number (MPN) method is used. All the testing kits is said to be tested for its accuracy and robustness prior to application for project level monitoring.
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

$N_{p,y}$ Accumulated number of premises type p with at least one individual project technology in year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Continuous
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The value of the parameter for the monitoring period is 10,563. The parameter calculates the total number of premises with at least one individual technology

		type in year y. The value is taken from the Sales or distribution records. The verification team confirms that each WPS unit distributed to end-users were given unique product ID and it was ensured that there is no double counting.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	CME maintains the sale or distribution record which include date of sale, geographic area of sale, model and quantity of project technologies. Name and telephone number, and address (if available) or other traceable indicator of premises identity and location for all end users.
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

$U_{p,y}$ Usage rate of the project technology by premises type p during year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	100% The value is correctly calculated and reported in monitoring report /05/ and ER calculation sheet. /16/ The CME has determined the value of the parameter through usage surveys. Surveys forms/34/ were checked and found to be consistent with the ER sheets/16/. VVB has conducted acceptance sampling to verify the CME survey results. The end-user interviewed during on-site audit (08 samples) confirmed that the device installed is active. The information was found to be consistent between the CME survey and the VVB survey
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Where a WCFT is undertaken to determine QPWp, this may be used to cross check the usage percentage
	In case project participants have deviation from gold standard?	NA
Findings	CAR#05 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

$DP_{p,y}$ Average days the project technology is present for end-users in the premises p in year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The value in the monitoring period is 138. The value was checked to confirm that the number of days has been calculated correctly determined from the date of sale for each project device and checking how many days out of 365 days, it was used by the end user. The sales database was used to verify the data /21/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
Findings	In case project participants have deviation from gold standard?	NA.
	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

$t_{p,y}$ Usage time of the project technology by premises type p in year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The value in the monitoring period is 10.23 hours/day. The value was checked from Representative survey. The value is based on the observational sample-based survey /34/ of project household practices and interview survey performed by telephone or messaging as it the option 2 of the parameter in the applied methodology allows ". Interview survey performed by telephone or messaging (e.g. text, app).
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
Findings	In case project participants have deviation from gold standard?	NA.
	No findings were raised.	

Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.
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$DN_{p,y}$ Average number of individual project technologies in each project premises type p in year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The value in the monitoring period is 1 The total number of individual project units by project premise type is recorded in the sales records/25/. The number of units were checked during the VVB sampling and end-users were asked during on-site audit about the number of units distributed and cross-checked from the database provided in ER calculation sheet /16/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

$HN_{p,y}$ Number of individuals per premises type p in the project boundary in year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The value of the parameter for the monitoring period is 4.10 The parameter represents the number of individuals per premises in the project boundary in year y. The value reported is from the project survey/34/. The verification team confirms that value reported in the ER sheet is correct.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA

	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

$P_{p,f,y}$ Quantity of fossil fuel f that is consumed in the project during year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The value of the parameter is 0 as the device doesn't use any fuel as gravity filters don't use any electricity or fossil fuel. The number of units were checked during the VVB sampling and end-users were asked during on-site audit about the number of units distributed and cross-checked from the database provided in ER calculation sheet /16/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The devices will be calibrated if measured.
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

$EC_{p,y}$ Quantity of electricity that is used by the project during year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The value of the parameter is 0 as the device doesn't use any fuel as gravity filters don't use any electricity or fossil fuel .
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The devices used for measuring will be calibrated.
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	

Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.
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LEy Leakage emissions during year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Every Two years
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Representative survey will be used
	How were the values in the monitoring report verified?	The value of the parameter is 0 tCO ₂ /year as the device doesn't use any fuel as gravity filters don't use any electricity or fossil fuel .
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA.
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

Water hygiene education campaigns - Hygiene campaigns carried out among project safe water end users

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	Water hygiene education campaigns is conducted annually. The verification team reviewed Hygiene Awareness Campaign Report /37/ and the questionnaire used for project monitoring that consists of questions related to hygiene. Surveys forms/34/ were checked and found to be consistent with the ER sheet/16/. VVB has conducted acceptance sampling to verify the CME survey results. The end-users interviewed during on-site site survey(08 samples) confirmed hygiene campaigns were conducted. The information was found to be consistent between the CME survey and the VVB survey.

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

HHS_{Project} % of users reporting money saving due to reduction in purchased fuel consumption in project

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	1
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	100 % This parameter accounts for % Of users reporting money saving due to reduction in purchased fuel consumption in project). The parameter is determined through surveys and the frequency of monitoring is annual or biennial. Surveys forms/34/ were checked and found to be consistent with the ER sheet worksheet/16/. VVB has conducted acceptance sampling to verify the CME survey results. The end-users interviewed during on-site site survey (08 samples) provided their positive feedback to the WPS technology given to them. The information was found to be consistent between the CME survey and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

HHclean_{project} Percentage of users using clean technology to access safe water in project scenario

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	3
	Measuring /Reading /Recording frequency	Continuous

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	100% The frequency of monitoring is continuous. The value obtained from Representative survey is correctly calculated and reported in ER sheet /16/. The tests were conducted by the trained staff of CME and results were evaluated in the central office. Test reports for 08 samples were checked/31/ and found to be consistent with the survey results were presented in ER sheet (monitoring survey)/16/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	CAR#05 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

HHtime_{Project} Percentage of users reporting time saving associated with cooking and fuel collection

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	5
	Measuring /Reading /Recording frequency	Once every 2 years Biennial
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	98% The value is correctly calculated and reported in Monitoring survey worksheet of ER sheet /16/. The parameter is determined through monitoring survey done biennially. Surveys forms/34/ were checked and found to be consistent with the ER sheet VVB has conducted acceptance sampling to verify the CME survey results. 08 samples were checked and found to be consistent with the survey results were presented in ER sheet (monitoring survey)/16/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	

Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.
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BENcleanproject SDG 6.1.1 Contributions**(i) Level of Service: Safely managed service****(ii) Project contributions: Number of beneficiaries**

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	6
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	43,283 The value has been confirmed from CME database/21/ . Test reports for 08 samples were checked/31/ and found to be consistent with the survey results were presented in ER sheet (monitoring survey)/16/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

EGproject Generation of employment in project scenario

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	8
	Measuring /Reading /Recording frequency	Continuous
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	72 The value of this parameter is obtained from Employee list /36/. This was cross-checked from the documentary evidence of contracts/ employee list/36/ submitted for the verification. The monitoring team was also interviewed to confirm that the project has generated the jobs.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA

	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

FC_{Project} Percentage of users confirming boiling using fuel in project scenario

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	12
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	98% The value is correctly calculated and reported in Monitoring survey worksheet of ER sheet /16/. The parameter is determined through monitoring survey done annually. Surveys forms/34/ were checked and found to be consistent with the ER sheet16/. VVB has conducted acceptance sampling to verify the CME survey results. 08 samples were checked and found to be consistent with the survey results were presented in ER sheet(monitored survey)/16/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	CAR#04 was raised in resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

FRC_{Project} Percentage of users reported fuelwood (eq.) savings in project scenario

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	15
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	98% The value is correctly calculated and reported in Monitoring survey worksheet of ER sheet /16/. The parameter is determined through monitoring survey done annually.

		Surveys forms/34/ were checked and found to be consistent with the ER sheet /16/. VVB has conducted acceptance sampling to verify the CME survey results. 08 samples were checked and found to be consistent with the survey results were presented in ER sheet(monitored survey)/16/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/11/ and applied methodology /09/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/11/.	

E.5.3. Comparison of monitored parameters with last monitoring period

Means of verification	VPA 1 - Improved Cookstove		
	Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
	Pp.y	0.00820	0.00799
	Np.y	154,078	35,988
	Up.y	89.40%	89.68%
	VPA 1-Electric Pressure Cooker		
	Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
	Pep.y	0.00616	0.00543
	Np,y	20	20
	Uep,y	90%	90%
	EGp,d,y	4.36	1.06
	VPA 16 – Improved Cookstove		
	Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
	Pp.y	0.00834	NA
	Np.y	119,111	NA
	Up.y	90%	NA
	VPA 2 - Water Purification System		
	Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
	Np,y	10,563	351
	Up,y	100%	100%
	DPp,y	138	162
	qi	1.967	1.285
	tp,y	10.23	11.83
	DNp,y	1.00	1.00
	QPWp,y	4.00	4.00
	HNp,y	4.10	3.91
	Mq,y	1.0	1.0
	Xcleanboil,y	0	0
Findings	CAR#04 and CAR#05 was raised and resolved.		
Conclusion	This is second monitoring period of verification of PoA. The verification team confirms that all the values of monitoring parameters obtained in this monitoring period is accurately calculated and reported in monitoring report and ER sheet /16/.		

E.6. Implementation of sampling plan

Means of verification	The CME as per the monitoring plan has followed CDM Guidelines for sampling and surveys for CDM project activities and programmes of activities /35/ to design the sampling plan for the VPAs in line with the applied methodologies are TPDDTEC version 3.1 /08/and Emissions reduction from Safe Drinking Water Supply, Version 1.0/09/. As per the sampling plan stated in the monitoring report /05/, a minimum 90% confidence interval and a 10% margin of error requirement is achieved for the sampled parameters. For VPA 1 has two technology. i.e., ICS and EPC Parameters determined through sampling Improved Cookstoves and Electric pressure cookers <table border="1"> <thead> <tr> <th>Data/Parameter</th><th>Description</th></tr> </thead> <tbody> <tr> <td>$U_{p,y}$</td><td>Usage rate of the project scenario p during year y</td></tr> <tr> <td>μ_y</td><td>Adjustment to account for any continued use of pre-project devices (baseline stove) in the project scenario during the year y</td></tr> <tr> <td>$P_{p,y}$</td><td>Specific fuel consumption for an individual technology in project scenario</td></tr> <tr> <td>$EG_{P,d,y}$</td><td>The monitoring of quantity of electricity consumed by project activity will be done for 3-consecutive days similar to kitchen performance test in which the energy meter will be fixed to the device to monitor the consumption of electricity for entire day</td></tr> <tr> <td>$P_{ep,y}$</td><td>Quantity of fuel consumed by a baseline technology y in project scenario</td></tr> </tbody> </table> For VPA 2: Water Purification Systems : <table border="1"> <thead> <tr> <th>Data/Parameter</th><th>Description</th></tr> </thead> <tbody> <tr> <td>$U_{p,y}$</td><td>Usage rate of the project technology by premises type p during year y.</td></tr> <tr> <td>$M_{q,y}$</td><td>Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country</td></tr> <tr> <td>$X_{cleanboil,y}$</td><td>Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology</td></tr> <tr> <td>QPW_p</td><td>Volume of drinking water per person per day for premises type p</td></tr> <tr> <td>$t_{p,y}$</td><td>Usage time of the project technology by premises type p in year y.</td></tr> <tr> <td>$DN_{p,y}$</td><td>Average number of individual project technologies in each project premises type p in year y</td></tr> </tbody> </table> For VPA 16: Parameters determined through sampling Improved Cookstoves <table border="1"> <thead> <tr> <th>Data/Parameter</th><th>Description</th></tr> </thead> <tbody> <tr> <td>$U_{p,y}$</td><td>Usage rate of the project scenario p during year y</td></tr> <tr> <td>μ_y</td><td>Adjustment to account for any continued use of pre-project devices (baseline stove) in the project scenario during the year y</td></tr> <tr> <td>$P_{p,y}$</td><td>Specific fuel consumption for an individual technology in project scenario</td></tr> <tr> <td>$EG_{P,d,y}$</td><td>The monitoring of quantity of electricity consumed by project activity will be done for 3-consecutive days similar to kitchen</td></tr> </tbody> </table>	Data/Parameter	Description	$U_{p,y}$	Usage rate of the project scenario p during year y	μ_y	Adjustment to account for any continued use of pre-project devices (baseline stove) in the project scenario during the year y	$P_{p,y}$	Specific fuel consumption for an individual technology in project scenario	$EG_{P,d,y}$	The monitoring of quantity of electricity consumed by project activity will be done for 3-consecutive days similar to kitchen performance test in which the energy meter will be fixed to the device to monitor the consumption of electricity for entire day	$P_{ep,y}$	Quantity of fuel consumed by a baseline technology y in project scenario	Data/Parameter	Description	$U_{p,y}$	Usage rate of the project technology by premises type p during year y.	$M_{q,y}$	Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country	$X_{cleanboil,y}$	Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology	QPW_p	Volume of drinking water per person per day for premises type p	$t_{p,y}$	Usage time of the project technology by premises type p in year y.	$DN_{p,y}$	Average number of individual project technologies in each project premises type p in year y	Data/Parameter	Description	$U_{p,y}$	Usage rate of the project scenario p during year y	μ_y	Adjustment to account for any continued use of pre-project devices (baseline stove) in the project scenario during the year y	$P_{p,y}$	Specific fuel consumption for an individual technology in project scenario	$EG_{P,d,y}$	The monitoring of quantity of electricity consumed by project activity will be done for 3-consecutive days similar to kitchen
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	performance test in which the energy meter will be fixed to the device to monitor the consumption of electricity for entire day
$P_{ep,y}$	Quantity of fuel consumed by a baseline technology y in project scenario

Target population:

The target population is households of Uganda. The VPAs i.e., GS10967, GS10968 & GS12119 is implemented in the same physical location of Uganda with same baseline scenario and technology and therefore the CME has chosen to apply across VPA sampling.

The CME has applied Random sampling for determining the usage rate of units distributed based on age as project technologies age over time and/or are replaced and accordingly calculate the sample size.

Sample size calculation:

CME has 3 VPAs under current verification. Moreover, the sample size has been determined through 90/10 C/P, but the CME has applied minimum limit of 100 for the sample size for all the technologies(at least 30 samples).

Technology	Vintage / Age	Required samples / vintage	Samples monitored
ICS	2021(1 to 2) 2022 (0 to 1)	100 samples and 30 per vintage	2021 VPA 1:79 2022 VPA 1:103 2022 VPA 16: 149
EPC	2021(1 to 2) 2022 (0 to 1)	20	2021 VPA 1: 20

Project KPT:

The CME has applied single sampling and calculated the sample size based on table given in TPDDTEC methodology/08/. The CME selected 90 samples were randomly selected considering the age group of ICS As per the methodology. Since there are only 20 EPC distributed during this monitoring period, KPTs conducted for all 20 units.

Survey dates:

The collection of monitoring data is done by trained personnel appointed by CME team. Usage related surveys from 24/04/2023 to 30/05/2023 and collection of water samples for water quality test has been done by the monitoring team on 07/06/2023/26/ for VPA 02. The usage monitoring survey was conducted from was conducted for a period of one month which was started on 7th April 2023 and ended on 2nd June 2023/21/ with KPTs performed from 11th April 2023 and ended on 5th June 2023/33/ for VPA 01 & VPA 16. The monitoring survey investigates changes over time in a project scenario by surveying end users with project technologies on an annual basis and usage survey determines the drop off rates considering project technologies age and users switch back to the baseline technology. The usage monitoring survey for first monitoring period of VPA 01 & 02 started on 2nd November 2021 and ended on 2nd December 2021. There was a delay in conducting the monitoring survey according to the monitoring survey frequency aligned with the VPA-DD as on September 20, 2022. The delay was caused because of outbreak of the Sudan strain of the Ebola virus in the central part of the country, which is the Mubende district near Kampala as announced by the Ugandan government. The end of Ebola outbreak was declared by the Ugandan government on Jan 11th 2023. PD waited for performance review of first verification until March 2023 and conducted survey in April 2023. PP has used the current survey results of 7th April 2023 to 30th June 2023 for the entire monitoring period of 01/12/2021 to 31/12/2022, since the captured results from the

	current monitoring survey are conservative due to the degraded efficiency of the project cookstoves, it was accepted by the verification team. Reliability check: The sampling approach undertaken by CME is duly explained under section D.4 of the monitoring report /05/, which has been assessed by the verification team and found to be correct and in-line to the standard /14/. The reliability check confirms that confidence precision has been met by the sampling plan applied by the CME. Conservativeness approach followed during this monitoring period by PD: 1. Baseline fuel consumption determined beforehand for VPA 1 and VPA 16 considered only the main fuel used, excluding any secondary fuel used by the sampled households. However, the current project's fuel consumption during the monitoring period for VPA 1 and VPA 16 is confirmed by VVB through monitoring survey results and KPT conducted. 2. VVB's confirmation is based on Uganda's National Charcoal Survey (2015) conducted by the Ministry of Energy and Mineral Development (MEMD), which calculates the average charcoal production efficiency at 12.5% using traditional kiln methods, resulting in a wood to charcoal conversion ratio of 1:8. However, VVB observes that PD applies a lower wood to charcoal conversion ratio of 1:6. 3. VVB found that a higher usage rate (91.26% (Vintage 2022) for VPA 1 ICS and 92.62% for VPA 16 ICS) has been demonstrated through the usage surveys conducted. PP has applied the maximum cap of 90% on stove vintage-wise usage rate and arrived at a weighted average usage rate of 89.4% for VPA 1 ICS and 90% for VPA 16 ICS, complying with the requirements pertaining to "good practice". 4. VVB found that PP has considered are 82% and 49% more than the minimum required ICS samples for VPA 1 and VPA 16 respectively and for VPA 2, 21% more WPS samples have been considered. Similarly, for KPT, 25% and 14% more samples (than the minimum required) have been considered for VPA 1 and VPA 16 respectively. 5. Also, as evidenced from the monitoring survey results, its worth to mention that the HHs which have been using the project ICS for the entire monitoring period but stopped using the ICS just few days /weeks before the usage survey have not been considered in the emission reduction calculation. 6. VVB verified from the KPT results that the percentage of HH using baseline stove is more than the percentage of HH using baseline stove identified in the usage survey, resulting in having a conservative project fuel consumption for both VPA 1 and VPA 16. 7. Though the value of 37.25 tCO₂/TJ for EF_{b,non-CO2} & EF_{p,non-CO2} has been approved by the GS / SustainCERT in the design certified VPA DD (VPA 1), the PD has calculated the emission reductions for the current monitoring period using IPCC value of 9.46 tCO₂/TJ for EF_{b,non-CO2} & EF_{p,non-CO2} (VPA 1 & 16), instead the design certified value of 37.25 to be conservative PD demonstrates their commitment towards integrity and the conservative approach adopted in the calculation of emission reductions achieved by the project activity during the monitoring period and this was verified by VVB.
Findings	CAR#06 was raised and resolved.
Conclusion	Sampling plan followed in the PoA and reported in monitoring report, ER sheet /16/ is in line with CDM guidelines for sampling and surveys /35/ and applied methodologies /08,09/.

E.7. Assessment of data and calculations of emission reductions or net removals

E.7.1. Calculations of baseline value of each SDG Impact

Means of verification	of	<u>Cookstoves</u> The targeted SDG and its corresponding baseline estimate are given below:
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Sustainable Development Goals Targeted	SDG Impact	Parameter description	Baseline estimate
SDG 1	No Poverty	% of users reporting money saving due to reduced fuel consumption in baseline	0
SDG 3	Good Health and Well-Being	% Of users reporting reduction in smoke/PM emissions while cooking on improved stove in baseline	0
SDG 5	Gender Equality	% Users reporting time savings for cooking /fuel collection	0
SDG 7	Affordable and Clean Energy	Access to affordable and clean energy (Number of ICS operating)	0
SDG 8	Decent Work and Economic Growth	Quantitative Employment and income generation	0
SDG 12	Responsible Consumption and Production	Fuel consumption in baseline	0
SDG 15	Life on Land	Average Fuel consumption per HH in baseline	0

For SDG 13. Climate Action, baseline emissions are calculated as follows:

$$BE_{b,y} = B_{b,y} * ((f_{NRB,b,y} * EF_{b,fuel,CO2}) + EF_{b,fuel,non-CO2}) * NCV_{b,fuel}$$

Where:

$BE_{b,y}$	Emissions for baseline scenario b during the year y in tCO ₂ e
$B_{b,y}$	Quantity of fuel consumed in baseline scenario b during year y, in tons
$f_{NRB,b,y}$	Fraction of biomass used in year y for baseline scenario b that can be established as non-renewable biomass, 0.89
$NCV_{b,fuel}$	Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/ton)
$EF_{b,fuel,CO2}$	CO ₂ emission factor of the fuel that is substituted or reduced. 112 tCO ₂ /TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{b,fuel,nonCO2}$	Non-CO ₂ emission factor of the fuel that is reduced , 9.46 tCO ₂ /TJ

$$B_{b,y} = N_{p,y} * P_{b,y}$$

Where:

$B_{b,y}$	Quantity of fuel consumed in baseline scenario b during year y, in tons
$P_{b,y}$	Specific fuel consumption for an individual technology in baseline scenario b during year y converted to tons/day 0.01591
$N_{p,y}$	Project technology-days in the project database for project scenario p through year y.

Hence

VPA	Technology	Baseline Emissions
VPA 1	ICS	1,415,433
VPA 1	EPC	214
VPA 16	ICS	381,788

Water Purification System

The targeted SDG and its corresponding baseline estimate are given below:

Sustainable Development Goals Targeted	SDG Impact	Parameter description	Baseline estimate
SDG 1	No Poverty	% users reported reduced money spent on fuel consumption in baseline scenario	0
SDG 3	Good Health and Well-Being	% users using clean technology to access safe water in baseline scenario	0
SDG 5	Gender Equality	% users reporting time savings for boiling/fuel consumption/access to water	0
SDG 6	Clean Water and Sanitation	Beneficiaries with access to safe water in baseline scenario	0
SDG 8	Decent Work and Economic Growth	Generation of employment in baseline scenario	0
SDG 12	Responsible Consumption and Production	% users confirming boiling using fuel in baseline scenario	98%
SDG 15	Life on Land	% users reported fuelwood equivalent savings in baseline scenario	0

For SDG 13. Climate Action,

The baseline emissions for the current monitoring period is calculated as follows:

$$BE_y = EF_b \times (1 - C_b - X_{\text{cleanboil},y}) \times Q_y \times M_{q,y}$$

Where:

BE_y = Baseline emissions from the use of fuel to obtain safe water in the baseline (tCO₂e)

C_b = Proportion of project end-users who in the baseline were already using a safe water supply that did not require boiling (%) fixed ex-ante,

$X_{\text{cleanboil},y}$ = Proportion of project end-users that boil safe water in the project year y (%)

Q_y = Quantity of safe drinking water provided by the project in year y (L)

$M_{q,y}$ = Modifier for the water quality in year y, fraction, 1.

$$EF_b = SE_{w,b,y} \times \sum (x_f \times (EF_{b,f,\text{CO}_2} \times f_{\text{NRB},f,y} + EF_{b,f,\text{nonCO}_2})) \div 10^9$$

Where:

EF_b = Emission factor for the use of fuel to obtain safe water in the baseline (tCO₂e/L)

$SE_{w,b,y}$ = Specific energy required to boil water (kJ/L), to be calculated as per the paragraph below

x_f = Proportion of fuel f used in the baseline (fraction determined based on an energy basis)

EF_{b,f,CO_2} = CO₂ emission factor from use of fuel f (tCO₂/TJ)

$EF_{b,f,nonCO_2}$ = Non-CO₂ emission factor arising from use of fuel f , when the baseline fuel f is biomass or charcoal (tCO_{2e}/TJ). This parameter is omitted when f is a fossil fuel.

$f_{NRB,f,y}$ = Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.

f = Index for baseline fuel

Calculations of specific energy required to boil water using the baseline technology ($SE_{w,b,y}$) is as follows:

$$SE_{w,b,y} = 360.83/\eta_{wb}$$

Where:

360.83 = Default amount of energy required to obtain 1 L of water after 5 minutes of boiling from a first principles approach kJ/l

η_{wb} = Efficiency of the stoves for baseline water boiling (%). Weighted average of baseline stove types.

Hence $SE_{w,b,y}$ for traditional firewood, traditional charcoal and improved charcoal are as follows

$$SE_{w,b,y} \text{ for traditional firewood} = 360.83 / 10\% = 3608.30 \text{ kJ/litre}$$

$$SE_{w,b,y} \text{ for traditional charcoal} = 360.83 / 16\% = 2255.19 \text{ kJ/litre}$$

$$SE_{w,b,y} \text{ for improved charcoal} = 360.83 / 37.9\% = 952.06 \text{ kJ/litre}$$

The quantity of safe drinking water provided by the project Q_y is determined as follows

$$Q_y = \sum N_{p,y} \times U_{p,y} \times QPW_{hh,p,y} \times DP_{p,y}$$

Where:

$N_{p,y}$ = Number of premises type p with at least one project technology in year y

$U_{p,y}$ = Usage rate of the project technology by premises type p during year y (%)

$QPW_{hh,p,y}$ = Volume of drinking water per premises p per day in year y (L)

$DP_{p,y}$ = Days the project technology is present for end-users in the premises p in year y

The volume of drinking water per premises is determined as follows:

$$QPW_{hh,p,y} = \min((q_i \times tp,y \times DN_{p,y}), (QPW_p \times HN_{p,y}))$$

Where:

q_i = Capacity of the HWT or IWT individual project technology (L/h), 1.285

tp,y = Usage time of the project technology by premises type p in year y (h/day),

$DN_{p,y}$ = Average number of individual project technologies in each project premises type p in year y ,

$HN_{p,y}$ = Number of individuals per premises type p (e.g. household, school) in year y ,

QPW_p = Volume of drinking water per person per day for premises type p (L) * average number of operational days in the year

Applied the default value or monitored value through water consumption field tests in the project scenario, capped at 5.5 L per person per day, Applying default value of 4 litre/person/day

Hence,

$$QPW_{hh,p,y} = \min((1.967 * 10.23 * 1), (4 * 4.10)) = 16.39 \text{ litre}$$

	Qy = 10,563 * 100% * 16.39 * 138 = 23,852,083 litres EFb = 0.0004022 tCO2e/litre BEy = 0.0004022 * (1- (5.51%/100) –0%) * 23,852,083*1 = 9,064 tCO2e <table><tr><th>VPA</th><th>Technology</th><th>Baseline Emissions</th></tr><tr><td>VPA 2</td><td>WPS</td><td>9,064</td></tr></table> The calculation of the baseline has been verified from the ER calculation sheet and was found correct and consistent.	VPA	Technology	Baseline Emissions	VPA 2	WPS	9,064
VPA	Technology	Baseline Emissions					
VPA 2	WPS	9,064					
Findings	CAR#06 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 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet /16/ of final Monitoring report /05/. 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 of this report. c) The calculations of baseline emissions as presented in the corresponding ER calculations sheet /16/ of final Monitoring report /05/ were checked and found to be consistent with the formulae and methods described in the registered monitoring plan of VPA-DDs/11/, registered PoA-DD /10/ and the applied methodologies /08,09/. 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 of this report.						

E.7.2. Calculations of project value of each SDG Impact

Means verification	of	Cookstoves The targeted SDG and its corresponding project estimate are given below:				
		Sustainable Development Goals Targeted	SDG Impact	Parameter description	Project estimate	
					VPA 01	VPA16
		SDG 1	No Poverty	% users confirming money saving with improved cookstove	ICS:89.40% EPC: 90%	90%
		SDG 3	Good Health and Well-Being	% users confirming less smoke with the use of improved stove	ICS:89.40% EPC:90%	90%
		SDG 5	Gender Equality	% users reporting time saving associated with cooking and fuel collection	ICS:89.40% EPC: 90%	90%
		SDG 7	Affordable and Clean Energy	Access to affordable and clean energy	ICS:137,738 EPC: 18	107,200

		(Number of ICS operating)		
SDG 8	Decent Work and Economic Growth	Total no of jobs created	72	72
SDG 12	Responsible Consumption and Production	Consumption of non-renewable biomass per household	ICS: 49.76% EPC : 61.3%	47.6%
SDG 15	Life on Land	Average Fuel consumption per HH in project scenario	ICS: 1061.57 EPC: 0.18	811.57

For SDG 13. Climate Action,
Project emissions due to biomass consumption is applicable for this project. For the current monitoring period, ICS project emissions are calculated as follows.

$$PE_{p,y} = B_{p,y} * ((f_{NRB,p,y} * EF_{p,fuel,CO2}) + EF_{p,fuel,non-CO2}) * NCV_{p,fuel}$$

$$B_{p,y} = N_{p,y} * ((P_{p,y} * U_{p,y}) + (P_{b,y} * (1 - U_{p,y})))$$

Where:

$PE_{p,y}$	Emissions for project scenario p during the year y in tCO ₂ e
$B_{p,y}$	Quantity of fuel consumed in project scenario p during year y, in tons
$f_{NRB,y}$	Fraction of biomass used in year y that can be established as non-renewable biomass, 0.89
$NCV_{p,fuel}$	Net calorific value of the project fuel that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/ton)
$EF_{p,fuel,CO2}$	CO ₂ emission factor of the fuel that is substituted or reduced. 112 tCO ₂ /TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{p,fuel,nonCO2}$	Non-CO ₂ emission factor of the fuel that is reduced, 9.46 tCO ₂ /TJ
$N_{p,y}$	Project technology-days in the project database for project scenario p through year y,
$P_{p,y}$	Specific fuel consumption for an individual technology in project scenario p during year y converted to tons/day
$U_{p,y}$	Cumulative usage rate for technologies in project scenario j during year y, based on cumulative installation rate and drop-off rate,
$P_{b,y}$	Specific fuel consumption for an individual technology in baseline scenario b during year y converted to tons/day,

Hence

VPAs	Technology	Project Emissions
VPA 1	ICS	802,482
VPA 16	ICS	218,284

EPC Project emissions:

Project emission due to electricity consumption from the grid is also applicable for EPC, along with emissions due to project fuel consumption.

$$PE_y = \sum_d EG_{p,d,y} \times EF_{el,y} \times (1 + TDL_{j,y})$$

$$PE_y = B_{ep,y} * ((f_{NRB,y} * EF_{p,fuel,CO2}) + EF_{p,fuel,nonCO2}) * NCV_{p,fuel}$$

$$B_{p,y} = N_{p,y} * ((P_{ep,y} * U_{p,y}) + (P_{b,y} * (1 - U_{p,y})))$$

Where:

Σ_d	Sum over all relevant devices
PE_y	Project emissions from electricity consumption in year y (t CO ₂ /yr)
$EG_{p,d,y}$	Quantity of electricity consumed by the project device d in year y (MWh/yr),
$EF_{el,y}$	Emission factor for electricity system in year y (t CO ₂ /MWh), 0.1158
$TDL_{j,y}$	Average technical transmission and distribution losses for providing electricity to source j in year y
J	Sources of electricity consumption in the project
PE_y	Project emissions from the use of biomass in year y (t CO ₂ /yr)
$B_{ep,y}$	Quantity of fuel consumed in project scenario p during year y, in tons
$f_{NRB,y}$	Fraction of biomass used in year y that can be established as non-renewable biomass
$NCV_{p,fuel}$	Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/ton)
$EF_{p,fuel,CO2}$	CO ₂ emission factor of the fuel that is substituted or reduced. 112 tCO ₂ /TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{p,fuel,nonCO2}$	Non-CO ₂ emission factor of the fuel that is reduced

Hence

VPA	Technology	Project Emissions
VPA 1	EPC	97

Water Purification System

Sustainable Development Goals Targeted	SDG Impact	Parameter description	Project estimate
SDG 1	No Poverty	% users reporting money saving due to reduction in purchased fuel consumption in project	100%
SDG 3	Good Health and Well-Being	% users using clean technology to access safe water in project scenario	100%
SDG 5	Gender Equality	% users reporting time saving associated with cooking and fuel collection	98%

	SDG 6	Clean Water and Sanitation	SDG 6.1.1 Contributions (i) Level of Service: Safely managed service (ii) Project contributions Number of beneficiaries	10,563
	SDG 8	Decent Work and Economic Growth	Generation of employment in project scenario	72
	SDG 12	Responsible Consumption and Production	% users confirming boiling using fuel in project scenario	0
	SDG 15	Life on Land	% users reported fuelwood (eq.) savings in project scenario	98
SDG 13: Climate Action Project emissions in year y (t CO ₂ e/yr) $PE_y = PE_{ff,p,y} + PE_{ec,p,y}$ Where: PE_y Project emissions in year y (tCO ₂) $PE_{ff,p,y}$ Project emissions from fossil fuel use in year y (tCO ₂) $PE_{ec,p,y}$ Project emissions from electricity use in year y (tCO ₂) As the filters don't use fossil-fuel or electricity for filtration, $PE_y = 0$				
Findings	CAR#01 and CAR#02 were 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 of this verification report. Also, the monitoring has been provided for the review in the ER calculation sheet /16/. b) The information provide in the monitoring report /05/ was cross-checked with other source, wherever appropriate.			

E.7.3. Calculation of leakage GHG emissions

Means of verification	The verification team reviewed the VPA-DDs/11/ and found that no potential leakage is present. The leakage assessment has been done in line with the methodologies "Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 03.1 and "Emission reductions from Safe Drinking Water Supply" Version 1.0. As reported, the leakage shall be reassessed after the end of second year of crediting period since, the monitoring frequency for leakage is "every two years".
Findings	No findings were raised.
Conclusion	Leakage assessment was found to be done in line to the applied methodologies /08,09/and verified from VPA-DD /11/.

E.7.4. Calculations of net benefits for each SDG Impact

Means of verification	Improved Cookstove (VPA 1)				
	Net benefits achieved under each SDG Impact are tabulated below:				
	SD G	SDG Impact	Baseline estimate	Project estimate	Net benefit
	1	No Poverty	0	89.40%	89.40%
	3	Good Health and Well Being	0	89.40%	89.40%
	5	Gender Equality	0	89.40%	89.40%
	7	Affordable and Clean Energy	0	137,738	137,738

8	Decent Work and Economic Growth	0	72	72
12	Responsible Consumption and Production	5.81	2.99	48.4 %
13	Climate Action	0	612,951 tCO ₂ e	612,951 tCO ₂ e
15	Life on Land	0.0159 tonnes-equivalent fuelwood/day	0.0082 tonnes-equivalent fuelwood/day	1061.57 tonnes-equivalent fuelwood/day

Electric Pressure Cooker (VPA 1)

Net benefits achieved under each SDG Impact are tabulated below:

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
1	No Poverty	0	90%	90%
3	Good Health and Well Being	0	90%	90%
5	Gender Equality	0	90%	90%
7	Affordable and Clean Energy	0	18	18
8	Decent Work and Economic Growth	0	72	72
12	Responsible Consumption and Production	5.8	2.25	61.3%
13	Climate Action	0	117 tCO ₂ e	117 tCO ₂ e
15	Life on Land	0.0159 tonnes-equivalent fuelwood/day	0.00616 tonnes-equivalent fuelwood/day	0.18 tonnes-equivalent fuelwood/day

Water Purification System (VPA 2)

Net benefits achieved under each SDG Impact are tabulated below:

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
1	No Poverty	0	100%	100%
3	Good Health and Well Being	0	100%	100%
5	Gender Equality	0	98%	98%
6	Clean Water and Sanitation	0	43,283	43,283
8	Decent Work and Economic Growth	0	72	72
12	Responsible Consumption and Production	0%	98%	98%
13	Climate Action	0 tCO ₂ e	9,064 tCO ₂ e	9,064 tCO ₂ e
15	Life on Land	0%	98%	98%

Improved cookstoves (VPA 16)

SD G	SDG Impact	Baseline estimate	Project estimate	Net benefit
1	No Poverty	0	90 %	90 %
3	Good Health and Well Being	0	90 %	90 %
5	Gender Equality	0	90 %	90 %

	7	Affordable and Clean Energy	0	107,200	107,200
	8	Decent Work and Economic Growth	0	72	72
	12	Responsible Consumption and Production	5.81	3.04	47.6%
	13	Climate Action	0	163,503 tCO ₂ e	163,503 tCO ₂ e
	15	Life on Land	0.0159 tonnes-equivalent fuelwood/day	0.00834 tonnes-equivalent fuelwood/day	811.57 tonnes-equivalent fuelwood/day
The emission reductions are calculated as follows: $ERy = BEy - PEy - LEy$ Where: ERy = Emission reductions in year y (t CO₂e/yr) BEy = Baseline emissions in year y (t CO₂e/yr) PEy = Project emissions in year y (t CO₂e/yr) LEy = Leakage emissions in year y (t CO₂e/yr)					
Findings	CAR#04 was raised and resolved.				
Conclusion	The verification team verified that - The complete data was available and is duly reported; - The description with regards to cross-check of reported data is included under respective parameters and its assessment has been done in section E.5 of this report - Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed - The total number of ERs achieved during the current monitoring period is 785,635 tCO₂e.				

E.8. Comparison of actual SDG Impacts achieved during this monitoring period with estimated value

Means of verification	The value estimated in ex ante calculations of approved PoA-DD /10/and VPA-DD /11/ for the monitoring period and the actual values achieved during this monitoring period has been report in section E.5 of the monitoring report /05/.		
	SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period (tCO ₂ e)	Actual values achieved during this monitoring period (tCO ₂ e)
	VPA 1	1,007,227	ICS:612,951/EPC:117
	VPA 16	632,931	163,503
	VPA 2	49,981	9,064
	Total	1,690,139	785,635
The emission reductions have been correctly calculated in accordance with the applied methodologies /08,09/. The ER calculation sheet /16/ were reviewed and all the values report in monitoring report is consistent with the ER sheet. There is decrease in achieved SDG Impacts from estimated value in approved VPA DD, mainly due to lesser number of distributed devices.			
Verified and certified emission reductions as per commitment period:			
Monitoring period		Amount achieved	
01/12/2021 – 31/12/2022 (VPA01 and VPA02)		622,132 tCO ₂ e	
01/05/2022 – 31/12/2022 (VPA 16)		163,503 tCO ₂ e	

Findings	No findings were raised.
Conclusion	The verification team confirms that. a) The actual values of achieved ERs during this monitoring period has been correctly reported in the monitoring report. b) The total number of ERs achieved during the current monitoring period is 785,635 tCO ₂ e.

E.9. Safeguarding principles

Means of verification	There was no safeguarding principle assessed 'Yes' or 'Potentially' and added to this monitoring plan.
Findings	No findings were raised.
Conclusion	Not applicable.

E.10. Stakeholder Inputs and Legal Disputes

Means of verification	There were no legal disputes, and no inputs/ grievances were received for this monitoring period/39/. CME collects feedback on a regular basis and during on-site survey with end-users it was found that none of the end-users have issues with the ICS, EPC and WPS system. No negative feedback was received during on-site surveys/31/.
Findings	No findings were raised.
Conclusion	The verification team confirms that the PoA receives no negative feedback on the ICS, EPC and WPS units distributed to institutions.

E.11. Continuous input and grievance mechanism

Means of verification	There was no input and grievances received during the monitoring period. As mentioned in section E.2 of VPA-DD/11/, the grievance mechanism is at place and end users are aware of the grievance mechanism. This was confirmed from the on-site site visit/31/.
Findings	No findings were raised.
Conclusion	The verification team confirms that the PoA receives no negative feedback on the ICS, EPC and WPS units distributed to institutions.

SECTION F. Internal quality control

The draft verification report, prepared by the verification team, underwent evaluation by an impartial technical review team. This evaluation aimed to ensure that Earthood adhered to its established internal procedures and regulations. The technical review team, encompassing expertise in all relevant technical areas related to the project, maintained objectivity and compliance with applicable GS rules.

Every member of the technical review team-maintained independence from the verification team. The technical review process possesses the authority to either endorse or reject the verification opinion. Additionally, it holds the capacity to raise supplementary findings, which require resolution prior to seeking registration.

All technical review proceedings are documented in Earthood's internal records. Any additional findings are incorporated into the report. The final report, sanctioned by the technical reviewer, is endorsed by the Managing Director. Subsequently, it is submitted to the CME and/or employed for registration application, representing Earthood Services Private Limited.

SECTION G. Verification opinion

The verification of PoA "UpEnergy – Social and Climate Impact Programme" was performed based on rules and requirements defined by GS4GG Principles and Requirements and UNFCCC for the CDM program of activities. The purpose of this project activity is to provide ICS, EPC and WPS to the households, thereby reduction of greenhouse gas emissions from the burning of non-renewable woody biomass and/or charcoal for cooking and boiling of water for drinking purpose in Uganda. Earthood Services Private Limited (Earthood), contracted by UpEnergy Group, has performed the independent verification of the emission reductions for the GS PoA "UpEnergy – Social and Climate Impact Programme" (GSID: 10963) for the second monitoring period 01/12/2021 – 31/12/2022 (Inclusive of both days) and first monitoring period of VPA 16- 01/05/2022 – 31/12/2022 (both the days included) as reported in the Monitoring Report, version 1.5 dated 11/10/2023.

Earthood confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. Project representative 'UpEnergy Group' is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

The verification activities were conducted in accordance with ESPL's CDM Quality Manual System as per the steps indicated under Section A of this report. The verification process has resulted in conclusion that the monitoring report is in compliance with applicable CDM and GS rules and regulations and in accordance with applied methodologies Technologies and Practices to Displace Decentralized Thermal Energy consumption (TPDDTEC), version 03.1 and Emission reductions from Safe Drinking Water Supply version 1.0.

As a result, it is confirmed that the emission reductions achieved from the implementation of GS PoA "UpEnergy – Social and Climate Impact Programme" are correctly reported in the GS Monitoring Report, version 1.5 dated 11/08/2023 and corresponding ER calculation sheets for the monitoring period:

VPA 1 and VPA 2- 01/12/2021 – 31/12/2022 (both the days included)) which are amount as 622,132 tCO₂e
VPA 16- 01/05/2022 – 31/12/2022 (both the days included) which are amount as 163,503 tCO₂e.

SECTION H. Certification statement

Earthood Services Private Limited (Earthood), contracted by UpEnergy, has performed the independent verification of the emission reductions for the GS PoA "UpEnergy – Social and Climate Impact Programme" (GSID: 10963) for the second monitoring period 01/12/2021 – 31/12/2022 of VPA 01&02 (Inclusive of both days) and the first monitoring period 01/05/2022 -31/12/2022(Inclusive of both days) of VPA16 as reported in the Monitoring Report, version 1.5 dated 11/10/2023.

Project representatives UpEnergy Group responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the programme of activity. It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity.

In our opinion, the GHG emissions reductions reported for the project activity for the second monitoring period 01/12/2021 – 31/12/2022 of VPA 01&02(Inclusive of both days) and the first monitoring period 01/05/2022 - 31/12/2022(Inclusive of both days) of VPA16 are fairly stated in the Monitoring Report, version 1.5 dated 11/10/2023. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodologies Technologies and Practices to Displace Decentralized Thermal Energy consumption (TPDDTEC), version 03.1 and Emission reductions from Safe Drinking Water Supply version 1.0/08,09/ and the monitoring plan contained in the PoA-DD version 5.0 dated 12/01/2022. Earthood Services Private Limited is able to certify that the GS PoA "UpEnergy – Social and Climate Impact Programme" (GSID: 10963) during the second monitoring period 01/12/2021 – 31/12/2022 of VPA 01&02(Inclusive of both days) and the first monitoring period 01/05/2022 -31/12/2022(Inclusive of both days) of VPA16 has achieved emission reductions amount to 785,635 tCO₂e.

Verified and certified emission reductions as per commitment period:

Monitoring period	VPAs	Amount achieved
01/12/2021 – 31/12/2022	01 & 02	622,132 tCO ₂ e
01/05/2022 – 31/12/2022	16	163,503 tCO ₂ e

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
AM	Approved Methodology
BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CME	Coordinating and Managing Entity
CL	Clarification Request
CO ₂	Carbon dioxide
CP	Crediting Period
DR	Desk Review
EB	Executive Board
EI	External Individual
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
IPCC	Intergovernmental Panel on Climate Change
IR	Internal Resource
KP	Kyoto Protocol
LSC	Local Stakeholder Consultation Process
MoC	Modalities of Communication
MoV	Means of Verification
MP	Monitoring Plan
ODA	Official Development Assistance
PA	Project Activity
PCP	Project Cycle Procedure
PD	Project Developer
PDD	Project Design Document
PE	Project Emission
PoA	Programme of Activities
PoA DD	Programme of Activities Design Document
PS	Project Standard
RCP	Renewal of Crediting Period
RFR	Request for Registration
tCO ₂ e	tonnes of Carbon di Oxide equivalent
TPH	Tonnes Per Hour
TR	Technical Reviewer
UNFCCC	United Nations Framework Convention on Climate Change
V	Version
VPA	Verified Project Activity
VVB	Validation and Verification Body
VVS	Validation and Verification Standard
Project Specific	
ICS	Improved Cookstove
GS4GG	Gold Standard for Global Goals
EPC	Electric Pressure Cooker
LSC	Local Stakeholder Consultation
MoV	Means of Verification
SDG	Sustainable Development Goals
WPS	Water Purification System technology

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	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	18/02/2022
Approved by	Ashok Gautam	Date	18/02/2022

Competence Statement

Name	Rahul Dev Gautam		
Education	B.Tech in Civil Engineering M.Tech in Environmental Engineering		
Experience	-		
Field	Civil Engineering		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	Yes		
Reviewed by	Shifali Guleria (Quality Manager)	Date	12/07/2023
Approved by	Deepika Mahala (Technical Manager)	Date	12/07/2023

Competence Statement			
Name	Deepika Mahala		
Country	India		
Education	M. Sc. (Environment Management), GGSIP University B.Sc. Hons. (Chemistry), Sri Venkateshwar College, DU		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	ACM0002, AMS.I.D., AMS.I.A, AMS.III.AV, AMS.II.G, AMS-II.C		
Local expert	YES (India, Bangladesh)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2 & TA 3.1)		
Reviewed by	Shifali Guleria (QM)	Date	28/04/2022
Approved by	Kaviraj Singh (MD)	Date	28/04/2022

Competence Statement			
Name	Julius Sam Khaukha		
Country	Uganda		
Education	Bachelors in Social Administration		
Experience	7 Years +		
Field	Education and Social Work		
Approved Roles			
Team Leader	NO		

Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	YES (Uganda)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	NO		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Kumar Gautam	Date	01/03/2018

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	GS	GS Principle & Requirements	Version 1.2	Others
2.	GS	GS Validation & Verification Body Requirements	Version 2.0	Others
3.	UNFCCC	Standard: CDM PS for PoA	Version 3.0	Others
4.	UNFCCC	Standard: CDM VVS for PoA	Version 3.0	Others
5.	CME	Monitoring report	Version 1.5 dated 11/10/2023	CME
6.	GS	Monitoring report template	Version 1.1	Others
7.	GS	Template Guide Monitoring report	Version 1.1	Others
8.	GS	Technologies And Practices To Displace Decentralized Thermal Energy Consumption (TPDDTEC)	Version 3.1	Others
9.	GS	Emission Reductions from Safe Drinking Water Supply	Version 1.0	Others
10.	CME	PoA-DD	Version 5.0 Dated 12/01/2022	CME
11.	CME	VPA-DDs GS10967- VPA01, GS10968- VPA02 & GS12119	VPA01- Version 05 VPA02- Version 05 VPA16- Version 4.0	CME
12.	GS	GS Programme of Activities requirements	Version 1.2	Others
13.	GS	Community Services Activity requirements	Version 1.2	Others
14.	UNFCCC	Standard for Sampling and surveys for CDM project activities and programmes of activities	Version 9.0	Others
16.	CME	ER calculation sheet	VPA01: Version 1.3 VPA02: Version 1.3 VPA16: Version 1.1	CME
17.	IPCC	IPCC default value for wood and charcoal: IPCC 2006 Guidelines for National Greenhouse gas inventories	2006	Others
18.	GS	GS Performance Review	-	Others
19.	CME	Manufacturer's / Technical specifications of ICS, EPC and WPS	-	Others
20.	CME	Training records	02/03/2023	CME
21.	CME	Distribution database	-	CME
22.	CME	Stakeholder consultation report	Version 2 Dated 15/12/2021	CME
23.	CME	Sample carbon transfer agreement between and end-users	Dated 01/01//2021	CME
24.	CME	Double counting Declaration	23/06/2021	CME
25.	CME	Sales receipts	-	CME
26.	CME	Water Quality Test documents	-	Others
27.	UNFCCC	TOOL 05: Methodological tool: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation	Version 3	Others
28.	CME	Baseline survey	-	CME
29.	WHO	National system to support drinking water, sanitation and hygiene: Global status report 2019	2019	Others
30.	UNFCCC	CDM Methodological tool 30: Calculation of the fraction of non-renewable biomass	Version 03	Others
31.	Others	On-site audit details	18/07/2023-22/07/2023	Others

GS4GG-PoA-VER-FORM

32	Others	UNFCCC Harmonization of Standards for GHG accounting	dated December 2021	Others
33	CME	Kitchen Performance Test documents	April 2023-June 2023	CME
34	CME	Monitoring survey	-	CME
35	UNFCCC	Guidelines for sampling and surveys for CDM project activities and programmes of activities	Version 04.0	Others
36	CME	Evidence of contracts/ employee list	-	CME
37	Others	Hygiene Awareness Campaign Report	-	CME
38	CME	Water consumption field test	-	CME
39	CME	Expression Book and Grievance helpline number	-	CME
40	CME	LSC Feedback form	-	CME
41	CME	Purchase agreement Upenergy Group and Re-Newable Hub (U) Ltd.	Dated 28/02/2020	Others
	CME	Documents to show delay in the Monitoring survey. 1. https://www.who.int/emergencies/situations/ebola-uganda-2022 2. https://www.who.int/news-room/fact-sheets/detail/ebola-virus-disease 3. https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---3-march-2020 https://www.who.int/emergencies/diseases-outbreak-news/item/2023-DON433	-	CME

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

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

FAR ID	01	Section no.	NA	Date : 10/10/2023
Description of FAR				
For VPA12119, the following FARs were raised at design review and the FARs were to be addressed during the 1 st verification of the VPA. The VVB shall verify during the verification the physical location for a Grievance Process Book				
Project participant response				Date : 10/10/2023
PP would like to state that during the physical site visit, VVB has conducted -verification of the grievance procedure and witnessed the grievance register, kept in the Uganda site office .The Grievance register for the current monitoring report is already shared with GS VVB.				
Documentation provided by project participant				
<i>Grievance Register</i>				
DOE assessment				Date: 11/10/2023
Verification team during its physical site visit, has conducted a verification of the grievance procedure and confirms that a grievance register has been maintained in the Uganda site office throughout the current monitoring period (01/12/2021 to 31/12/2022). VVB confirms that all grievances received were properly addressed and successfully resolved. Hence FAR#01 is closed.				

FAR ID	02	Section no.	NA	Date : 10/10/2023
Description of FAR				
For VPA 12119, the following FARs were raised at design review and the FARs were to be addressed during the 1 st verification of the VPA. The VVB is required to check for double counting during verification stage by reviewing all relevant registries that could hold RECs/VERs/CERs from the considered project activity.				
Project participant response				Date : 10/10/2023
PP would like to confirm that there is no double counting during verification for the VPAs (GS PoA -10963 – VPA 1, 2 & 16). The No double counting declaration has been shared with GS VVB during physical site visit.				
Documentation provided by project participant				
<i>No double counting declaration</i>				
DOE assessment				Date: 11/10/2023
All relevant registries including UNFCCC, GS and VERRA have been checked by the Verification team and it is confirmed that the VPA has not been registered as an individual Gold Standard or CDM project and/or as a part of any other CDM PoA and/or any other mechanism to avail climate change mitigation benefits. Verification team found that each cookstove distributed under this PoA has the Brand logo, PoA ID and unique serial number on the product. The cookstove photograph stamping logo and unique serial number have been shared with VVB. The double-counting declaration has been submitted by the PD & the verification team found it acceptable. Hence FAR#02 is closed.				

Appendix 5.

FAR ID	03	Section no.	NA	Date : 10/10/2023
Description of FAR				
For VPA 12119, the following FARs were raised at design review and the FARs were to be addressed during the 1 st verification of the VPA. This VPA has been included using Fast Track inclusion pathway. The VVB shall access and confirm that the VPA complied with the requirements defined for the inclusion of VPAs in the registered PoA and corresponding VPAs during the first verification of the VPA and the same shall be discussed in the verification report in compliance with paragraph 8.4.11 of the Programme of Activity Requirements.				
Project participant response				Date : 10/10/2023
VVB has responded to the comment.				

Documentation provided by project participant	
NA	
DOE assessment	Date: 11/10/2023
The verification team has assessed the VPA 16 (GS12119 inclusion under the PoA 10963) and confirms that VPA 16 is in compliance with the requirements defined for the inclusion of VPAs in the registered PoA. Since the VPA 16 is a regular VPA of real case VPA 1 (i.e. VPA 16 follows the framework / requirements set out by the associated real case VPA 1- GSID: 10967), establishment of baseline scenario and baseline emission calculation/SDG estimation have already been approved by SustainCERT, and Gold standard during design certification. Verification team has also verified during desk review and onsite visit that the VPA16 has met the inclusion requirements with paragraph 8.4.11 of the Programme of Activity Requirements and has been found consistent. The VPA inclusion requirement regarding VPA 16 is in line with the registered PoA and the associated requirements have been updated in section E.2.1 of the revised verification report. Hence FAR#03 is closed.	

Table 2. CL from this verification

CL ID	01	Section No.	D.4	Date : 31/07/2023
Description of CL				
PD is requested to clarify whether EPCs will be distributed in the VPA16 as the description under section B.1 of the MR mentions "The VPA 1 & VPA 16 involves the promotion and distribution of improved cookstoves (ICS) and electric pressure cooker (EPC) in Uganda for use by households." PD is requested to provide a justification for the above statement.				
Project participant response				Date : 04/08/2023
Under VPA 16, there have been no EPC distributions during the current monitoring period. EPC distribution will be noted in the project database as it occurs during crediting period in accordance with VPA-DD section A.3. However, VPA 16 is a regular VPA of real case VPA 1 (i.e., VPA 16 follows the framework/requirements set out by the associated real case VPA 1- GSID: 10967). PD has included the clarification on EPC sales under VPA 16 in section B.1 of revised MR.				
Documentation provided by project participant				
Revised MR v1.1				
DOE assessment				Date: 12/08/2023
VVB found that the PD has revised the statement in the section B.1 of the revised MR that the PD has no plan to distribute EPC under the VPA 16. This was discussed with the PD during the site visit and VVB has confirmed that the EPC production has been stopped and since VPA 16 is regular case VPA for the Real case VPA01, it has been mentioned to maintain framework. Hence the CL#01 is closed.				

CL ID	02	Section No.	B.1	Date : 09/08/2023
Description of CL				
Section B.1 – "Description of implemented project", Under improved cookstove the Project Developer has documented six types of cookstoves in both the PDD and the MR. However, an additional cookstove type, namely SHS-PRO, is present in the sales database of VPA1 and VPA16. The PD is kindly requested to provide an explanation for the omission of SHS-PRO from the MR and subsequently make the necessary updates to rectify this discrepancy.				
Project participant response				Date: 14/08/2023
PP has incorporated information about the SHS-PRO cookstove within section B.1, titled "Description of implemented project," in the updated MR. The distribution of the SHS PRO stove has taken place in VPA 1 & 16 within the current monitoring period. The PP has aligned the MR with the ER Sheet by consistently integrating details about the SHS PRO stove.				
Documentation provided by project participant				
Revised MR Version 1.2				
DOE assessment				Date: 15/08/2023
PD has added the missing model name to the updated MR and has provided a valid explanation for it. Consequently, the clarification has been resolved and is now considered closed. Hence the CL#02 is closed.				

CL ID	03	Section No.	D.2	Date : 09/08/2023
Description of CL				

Section D.2 – “Data and parameter monitored”, under SDG 8 PD has indicated a total of 72 jobs created during the monitoring period, along with the comment that states, 'The total number of jobs created includes VPA 1, 2, and 16, as the sales agents or salespersons are responsible for selling both WPS and ICS/EPC.' However, in the ER sheets under the SDGs tab, SDG 8 specifies, 'Number of jobs created (combined total for VPA 1 and VPA 2).' PD shall provide clarification regarding the overall number of jobs and which specific VPAs are covered within this count.

Project participant response	Date: 14/08/2023
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The operational team set up for this project is mainly based out of our office in Uganda where the operations team and sales team collaboratively work across all projects. Therefore, allocation of the total number of staff employed/ jobs created in individual VPAs is practically not possible. This clarification regarding cumulative no's for VPA 1,2 & 16 has been included as an additional comment in monitoring parameters of the MR. Furthermore, this clarification has also been incorporated into the ER Sheet for all VPAs.

Documentation provided by project participant
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DOE assessment	Date: 15/08/2023
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PD has addressed the clarification regarding the number of employments generated in VPA 1, VPA 2, and VPA 16, and VVB has found the explanation to be satisfactory and appropriate. The clarification is now closed.

Hence the CL#03 is closed.

CL ID	04	Section No.	Performance review	Date : 10/10/2023
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Description of CL

The following are the comments raised during the Technical Review round before the first resubmission. PD is requested to address the following comments:

1. The CME shall discuss how leakage was assessed since as per the registered VPA-DDs, the leakage should be assessed every two years. It is identified that 70 out of 182 (VPA 1) & 57 out of 149 (VPA 16) end users have baseline stove. Thus, indicating the trend of continued use of baseline stove. How is leakage reported 0 if this is the question related to leakage?
2. For parameter SDWS 25 (HNp,y), PD shall clarify if outliers were identified and removed. Why has PP not done a outlier analysis on the family size and instead compared the family size with the national average? Please clarify
3. PD mentions that the water quality was tested by National Water & Sewerage Corporation Central laboratory – Bugolobi. Please provide the accreditation certificate of this organization.

Project participant response	Date : 10/10/2023
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1. 70 out of 182 (VPA 1) & 57 out of 149 (VPA 16) end users use baseline stoves in project scenario during the current monitoring period; this has already been captured in the project fuel consumption through the project KPTs performed for the monitoring period. Thus, this continued use of baseline stove by the project end users do not form part of leakage. The Leakage emissions are the emissions that occur outside the project boundary and has been evaluated as zero based as explained below. PP has included questions related to leakage (outside the project boundary) in the monitoring survey, and based on the response, PP has assessed that leakage for the current monitoring period is zero. No baseline stoves have gone out of the project boundary. 2. The parameter SDWS 25, is the family size of the sampled project end users. Although this is a monitoring parameter, the value of this parameter is not a measured / calculated value and cannot be specified within a range. The value captured under this parameter is true to its nature. The population survey in the country takes into account of the minimum and maximum size of the family and arrives at the average family size. Hence it will not be appropriate to perform an outlier analysis on family size; instead, PP has compared the monitored family size with the national average. PP has updated the response in the SC feedback form to include the above details. 3. The National Water and Sewerage Corporation (NWSC) is a public utility company 100% owned by the Government of Uganda. The Corporation conducts its activities according to standard operating procedures and protocols and further participates in proficiency testing with international accredited laboratories. The details related to accreditation of the National Water & Sewerage Corporation Central laboratory is hereby submitted along with this submission to the VVB.	
Documentation provided by project participant	
Supporting Evidence - National Water & Sewerage Corporation Central laboratory	
DOE assessment	Date : 11/10/2023
1. Since the data about the usage of the baseline stove have already been monitored in the project KPT which is not considered as Leakage. Hence the leakage is not considered and the comment is closed. 2. PD has confirmed the household size with the national average as the national survey takes into account of the minimum and maximum size of the family and arrives at the average family size. And hence not performing outlier analysis. But it must be removed as it is a common principle of considering average and outlier analysis must be done according to the CDM sampling guidelines. Hence this comment is not closed. 3. PD has provided the accreditation certificate and the verification team found the public utility company satisfactory as it conducts activities according to standard operating procedures and protocols and further participates in proficiency testing with international accredited laboratories and hence the comment is closed.	
Since all comments are not addressed, CL#04 is open.	
Project participant response	Date : 12/10/2023
2. In accordance with the recommendation made by SustainCERT and VVB regarding the common principle of using average values of parameter SDWS 25 ($HN_{p,y}$), the PP has excluded the outlier value from the monitoring survey database of VPA 2 ER sheet. This adjustment has resulted in a reduction in the ERs from 9270 tCO _{2e} to 9064 tCO _{2e} . The revised ERs have been updated in the revised MR.	
Documentation provided by project participant	
Revised MR Revised ER Sheet	
DOE assessment	Date : 12/10/2023
2. PD has conducted the outlier analysis and has excluded the outlier values from the monitoring survey database of VPA 2 ER sheet. The reduction in the ERS with the adjustment has been verified by the VVB and found acceptable. Hence the CL#04 is closed.	

Table 3. CAR from this verification

CAR ID	01	Section no.	ER Sheet	Date : 31/07/2023
Description of CAR				
VVB found the following inconsistencies in the "Key Project Information" section:				
a. The date of the 'Project design certification' for VPA16 to be 24-07-2023. This is a future date. The MR has been completed on 12/07/2023 but the project design certification has been mentioned to be done on 24-07-2023. Please clarify the date with an appropriate document. b. The values of SDGs for VPA1 under the table 1 of the MR is found to be inconsistent with the values mentioned in the ER sheet 'SDG' Tab. PD is requested to check all the SDGs value as mentioned in the commented MR.				
Project participant response				Date : 04/08/2023
a. The VPA 16 is currently undergoing the Design Certification process with SustainCERT in Round 1. As part of this submission, we are hereby presenting the final VPA 16 Design Document after addressing the comments provided by SustainCERT.PP would like to mention the VPA 16 is a regular VPA of real case VPA 1 (i.e., VPA 16 follows the framework / requirements set out by the associated real case VPA 1- GSID: 10967). b. PP has acknowledged the inconsistency on SDG values in MR & ER and also has updated the ER & MR to maintain the consistency for all the SDG values throughout the revised MR.				
Documentation provided by project participant				
Revised MR v1.1				
DOE assessment				Date: 12/08/2023
a. Since VPA16 was under the design certification and the expected date of project design certification was 24-07-2023. Hence the date was mentioned and this was cleared by the latest VPA-DD of VPA-16 submitted. b. The values for SDG provided in MR are made consistent with the ER sheet by PD, hence the finding is considered closed.				
Since both the comments are addressed, the CAR#01 is closed.				

CAR ID	02	Section no.	Section E	Date : 31/07/2023
Description of CAR				
PD is requested to address the inconsistency of the values of SDGs mentioned in the section E.5 of the MR. The values have been found inconsistent with the one's mentioned in the ER sheet 'SDG' tabs. PD is also requested to provide all the required documents to verify the values mentioned in the ER sheet as well as MR.				
Project participant response				Date : 04/08/2023
PP has acknowledged the inconsistency on SDG values in MR & ER and also has updated the ER & MR to maintain the consistency for all the SDG values throughout the revised MR.				
Documentation provided by project participant				
Revised MR v1.1				
DOE assessment				Date: 12/08/2023
PD has acknowledged all the marked inconsistencies in section E of monitoring report and made it consistent throughout the section with respect to the ER sheets, hence the finding is closed. Hence the CAR#02 is closed.				

CAR ID	03	Section no.	Section C	Date : 31/07/2023
Description of CAR				
Under section C of the MR for Disposal policy, it is mentioned that ". To incentivize full adoption, the project proponents extend a full-year warranty in exchange for the disposal of a household's traditional stove." Some of the households still own the traditional stove as checked during the OSV. PD is requested to substantiate the statement made.				
Project participant response				Date : 04/08/2023
PP encourages the end user to surrender their traditional technology under the 'Disposal policy' to extend the ICS warranty period. However not all HH surrender their traditional cookstove for some practical reasons. In any case, continuous use of ICS is encouraged, and fuel consumption in both the stoves are captured during the KPT.				
Documentation provided by project participant				
Revised MR v1.1				
DOE assessment				Date: 12/08/2023

VVB acknowledges the PDs response that the monitoring team is putting continuous effort to stop the usage of the baseline devices by the end-users by explaining the benefits and also extending the warranty and this was done during the follow up visits by the monitoring team. Since this is a continuous effort by PD throughout the tenure and since the end-users are the ones who can decide to stop usage in a due course of time, the justification given is satisfactory. PP accounts the usage of pre-project device through the KPT and the monitoring survey conducted. In the additional comment for parameter 'μy', PP states that "Emissions reductions are calculated based on the total fuel usage in the Household (including all stoves – baseline and project ICS), which takes into account any fuel usage in the pre-project devices" The comment is addressed satisfactorily, and the comment is closed. Hence the CAR#03 is closed.

CAR ID	04	Section no.	Section D	Date	: 31/07/2023
Description of CAR					
- In the D.1 of MR for parameter $EF_{b,non-CO_2}$ & $EF_{p,non-CO_2}$, the value is mentioned to be 9.46 tCO₂/TJ which is inconsistent with the value mentioned in the VPA-DD. PD is requested to clarify the change of value as it is an ex-ante parameter and the same value will be mentioned for the whole crediting period. Kindly justify the change. - In the D.1 of MR for parameter EF_{ec}, Please clarify why the value is not given here but has been mentioned in the 'Default values' tab in the ER sheet of VPA2. - In the D.2 of MR, PD is requested to clarify the inconsistency of the parameter $N_{p,y}$. The parameter in the ER sheet depicts the 'project technology-days in the project database for project scenario p through year 1'. the value and description is inconsistent with the ER sheet. - Under the section D.2 of the MR, PD is requested to address the inconsistency of the values mentioned for VPA1 for SDG 1, 3, 5, 7. - Under the section D.2 of the MR, PD is requested to address the inconsistency of the values mentioned for parameter $U_{p,y}$, SDG 3, SDG 5 and SDG 12 for VPA 2 with ER sheet. - Under the section D.3 of the MR, PD is requested to address the inconsistency of the values mentioned for parameter $N_{p,y}$ for VPA 1&16 and parameter $U_{p,y}$ for VPA2 with the ER sheets as the value couldn't be confirmed in the respective ER sheets. Please clarify.					
Project participant response					Date
- PD has considered the $EF_{b,non-CO_2}$ & $EF_{p,non-CO_2}$ as 9.46 tCO₂/TJ as per the SustainCERT recommendation during the VPA 1 MP 1 performance review (Round 2). As per the feedback from SC during the II round. <i>"As per the AR5, the default $EF_{b,non-CO_2}$ factor is 9.46 tCO₂e/TJ. The PD shall revise value and apply 9.46 tCO₂e/TJ for wood, otherwise, the PDD shall justify applicability of using global range of values 258 – 2190 and 4 – 18.5 for CH₄ and N₂O which can be applied by any country are applicable to the project boundary of VPA, in order to apply them"</i>. The SustainCERT findings along with PD & VVB responses are enclosed herewith for VVB reference. For the current monitoring period, PP has followed the same approach as recommended by the SustainCERT and applied a value of 9.46 for $EF_{b,non-CO_2}$ & $EF_{p,non-CO_2}$. - PD has mentioned in the remark for the parameter EF_{ec} (SDWS 16) that there is no use of electricity in the project device anticipated to be implemented under the VPA till this MP. In case a new model which requires electricity will be then introduced during the subsequent MP then the below default values will be used accordingly. Hence PP has included the value in the tab "Default Values" in ER sheet however it is not used for ER calculations and in MR PD has mentioned "Not applicable for the current monitoring period" in this monitoring period. - The parameters "$N_{p,y}$" describe the "Technologies in the project database for project scenario p through year y" that monitor the number of sales units during the monitoring period, in accordance with TPDDTEC Version 3.1 - Section 3.1 (Monitoring Methodology) & technology days mentioned in the ER Sheet for parameter "$N_{p,y}$" for calculation purposes which indicate the "Cumulative number of project technology-days included in the project database for project scenario p", in accordance with GS Meth -page 19 equation 1.Hence No revision required in the revised Monitoring report. - PP has acknowledged the inconsistency on SDG values in MR & ER and also has updated the ER & MR to maintain the consistency for all the SDG values throughout the revised MR. - PP has corrected the parameter $U_{p,y}$ along with SDG 3, SDG 5, and SDG 12 for VPA 2 in section D.2 of the revised MR in line with ER Sheet. - PP has corrected the parameter $U_{p,y}$ for VPA 2 along with parameter $N_{p,y}$ for VPA 1&16 in the section D.3 of the revised MR inline with ER Sheet.					: 04/08/2023

Documentation provided by project participant	
Revised MR v1.1 & SustainCERT R3 Findings with PD responses	
DOE assessment	Date: 12/08/2023
a. PD has provided the response of considering the value of both the parameters as 9.46 tCO₂/TJ as per the Sustaincert recommendation during the VPA 1 MP 1 performance review (Round 2). But the value of the parameter is given as 37.25 instead of 9.46tCO₂/TJ in the latest VPA-DD of VPA16 provided by PD dated 24/07/2023. PD shall justify why in the same PoA, two value of the same parameter are applied for two separate VPAs and also address the inconsistency of not keeping the consistent value of the 2 parameters for VPA16 I both VPA-DD and MR. Hence this comment is open. b. The PD explanation clarifies that the parameter EF_{ec} (SDWS 16) does not currently apply due to the absence of electricity use in the project device. The inclusion of the value in the "Default Values" tab is for potential future scenarios involving electricity. The response acknowledges the explanation provided for the remark "Not applicable for the current monitoring period.", hence the finding is closed. c. Since the PD explanation of "The parameters "Np,y" describe the "Technologies in the project database for project scenario p through year y" that monitor the number of sales units during the monitoring period, in accordance with TPDDTEC Version 3.1 - Section 3.1 (Monitoring Methodology) & technology days mentioned in the ER Sheet for parameter "Np,y" for calculation purposes which indicate the "Cumulative number of project technology-days included in the project database for project scenario p", in accordance with GS Meth -page 19 equation 1" Is found to be satisfactory and has been kept the same in the last monitoring report. VVB find the justification satisfactory, and no revision is required in the present monitoring period. Hence the comment is closed. d. PD has acknowledged all the marked inconsistencies in the MR and updated the values accordingly, which are now reflected in the latest revised MR and ER. Since all the corrections have been appropriately made and the data is now consistent, the finding is considered closed. e. PD has acknowledged all the marked inconsistencies regarding SDGs for VPA2 in the MR and updated the values accordingly, which are now reflected in the latest revised MR and ER. The finding is considered closed. f. VVB found that the values have been revised for parameter Np,y for VPA 1&16 in the section D.3 of the revised MR inline with ER Sheet. But under water purification systems, parameter $U_{p,y}$ - The value provided in the MR is inconsistent with the value provided in ER sheet(VPA2) - ER calculation tab, cell no B8. Hence the comment is still open . Thus, the CAR#04 is OPEN	
Project participant response	Date: 14/08/2023
a. Since the VPA 16 is a regular VPA of real case VPA 1 (i.e., VPA 16 follows the framework/requirements set out by the associated real case VPA 1- GSID: 10967). Hence, PP has incorporated the identical value in VPA 16 – DD to align with real case VPA 1, specifically 37.25 tCO₂/TJ. The EF_{b,non-CO2} & EF_{p,non-CO2} parameter value has been revised in line with the VPA DD in the revised monitoring report. However, PD has calculated the emission reductions for the current monitoring period using the IPCC value of 9.46 tCO₂/TJ for EF_{b,non-CO2} & EF_{p,non-CO2}, instead, the design-certified value of 37.25 is conservative in line with a previous performance review (Round -2) of VPA 1 & 2. PP has also provided the clarification under additional comments of parameters EF_{b,non-CO2} & EF_{p,non-CO2} in the revised MR Version 1.2. f. The Parameter $U_{p,y}$ under VPA 2 - water purification systems value for this parameter is now made consistent with ER Sheet cell no B8(100%).	
Documentation provided by project participant	
Revised MR Version 1.2	
DOE assessment	Date: 15/08/2023
a) PD has provided a justified explanation regarding EF_{b,non-CO2} & EF_{p,non-CO2} and the explanation stands true since the VPA 16 is a regular VPA of real case VPA 1, therefore they have incorporated the identical value in VPA 16. Hence the finding is closed. f) The value of Parameter $U_{p,y}$ under VPA 2 is now made consistent which is reflected in the latest MR of the project. Finding is considered to be closed Since both the comments are addressed CAR#04 is closed.	

CAR ID	05	Section no.	ER Sheet	Date : 09/08/2023
Description of CAR				
VVB found the following inconsistencies in the Section D.2 - "Data and parameter monitored" : - Under water purification systems, parameter $U_{p,y}$ - The value provided in the MR is inconsistent with the value provided in ER sheet(VPA2) - ER calculation tab, cell no B8(100%). - PD is requested to address the inconsistency of the values of baseline emissions for VPA 2 under SDG 13 mentioned in section E.1 of the MR. The values have been found inconsistent with the one's mentioned in the ER sheet 'ER calculation' tab, cell B38.				
Project participant response				Date: 14/08/2023
Section D.2 - "Data and parameter monitored" - The Parameter $U_{p,y}$ under VPA 2 - water purification systems value for this parameter is now made consistent with ER Sheet cell no B8(100%). - Section E.1 of the MR in which SDG 13 value is now made consistent with ER Sheet 'ER calculation' tab, cell B38. The above inconsistency is now made consistent in the revised monitoring report with the ER Sheet.				
Documentation provided by project participant				
Revised MR Version 1.2				
DOE assessment				Date: 15/08/2023
- The value of Parameter $U_{p,y}$ under VPA 2 is now made consistent which is reflected in the latest MR of the project. Finding is closed. - The inconsistency regarding the baseline emissions has been addressed, and the same has been updated in the latest project's MR. The finding is considered to be closed. Since both the comments are addressed CAR#05 is closed.				

CAR ID	06	Section no.	TR comments	Date : 18/08/2023
Description of CAR				
PD is requested to address the following comments raised during the TR round: - Monitoring/usage survey has to be done in the frequency of one year. The last monitoring survey was done in Nov 2021 to Dec 2021. Whereas the usage monitoring was conducted for a period of one month which started on April 2023 and ended in June 2023. KPTs performed from April 2023 and ended in June 2023. PP is to clarify why there is inconsistency in monitoring survey in accordance with the frequency required? - The employment record provided mentions the job of 47 people. PP is requested to provide the justification of 72 jobs claimed for SDG 8 along with a proper evidence.				
Project participant response				Date : 22/08/2023
a. For the verification of the designated monitoring period from 01/12/2021 to 31/12/2022 (MP2) for VPA 1 & 2, a monitoring survey had been scheduled between November and December of 2022, in accordance with GS requirements for monitoring survey frequency aligned with VPA DD. However, on September 20, 2022, the Ugandan government confirmed an outbreak of the Sudan strain of the Ebola virus in the central part of the country, which is the Mubende district near Kampala. Subsequent cases were confirmed in various other districts. The virus had spread to a total of nine districts in Uganda, resulting in 55 deaths out of 164 reported infections, highlighting the escalating and detrimental nature of the outbreak. Due to the severe impact of Ebola and the associated risk attributed to its higher mortality rate, which stands at approximately 50% compared to a 3.4% fatality rate of COVID-19, the project proponent had decided to postpone the monitoring survey for the relevant VPAs until after the Ebola virus has been contained. The survey was been rescheduled for April 2023, following the official end of the Ebola Virus on January 11th, 2023. Subsequently, the project proponent reorganized all the necessary plans for the monitoring survey, and it was effectively carried out in April 2023. Comprehensive evidence pertaining to the Ebola virus during these specific months has been provided to the GS VVB. As already there has been a delay in carrying out the monitoring survey, PP would like to state that since the first MP verification has been scheduled for performance certification in March 2023, PP had waited for its performance certification to get concluded to see if there were any FAR raised related to the project monitoring, as this being the first verification of VPA 1 and 2. Also, since the captured results from the current monitoring survey are conservative due to the degraded efficiency of the project cookstoves, PP has used the current survey results of April 2023 for the entire monitoring period of 01/12/2021 to 31/12/2022. b. The Supporting evidence for the 72 employees has been submitted to the assessment team along with this submission.				

Documentation provided by project participant	
Revised MR Version 1.4 ER Sheet Version 1.2	
DOE assessment	Date : 23/08/2023
a. VVB found the justification given by PD to be satisfactory. The delay of the monitoring survey for the present monitoring period was due to the outbreak of Ebola in Uganda. This was checked and confirmed by the verification team from independent research and also from the evidence provided by the PD. The end of Ebola outbreak was declared by the Ugandan government on Jan 11th 2023. But PD conducted survey in April 2023 waiting for performance review of first verification until March 2023. PP has used the current survey results of April 2023 for the entire monitoring period of 01/12/2021 to 31/12/2022, since the captured results from the current monitoring survey are conservative due to the degraded efficiency of the project cookstoves. Hence the justification provided for delayed monitoring survey is found satisfactory and hence the comment is closed. b. PD has shared the list of employees in order to substantiate the claim for SDG 8 which includes all the 72 employees having 28 females and 44 males. Hence the findings are closed. Thus, the CAR #06 is closed.	

Table 2. FAR from this verification

FAR ID	NA	Section No.	Date : DD/MM/YYYY
Description of FAR			
NA			
Project participant response			Date : DD/MM/YYYY
NA			
Documentation provided by project participant			
NA			
VVB assessment			Date: DD/MM/YYYY
NA			