Verification and certification report form for programme of activities	
BASIC INFORMATION	
Title and UNFCCC reference number of the programme of activities (PoA)	Up Energy Improved Cookstove Programme, Uganda GS ID reference number- 10898
Version number(s) of the PoA-DD(s) to which this report applies	Version 3.0
GS ID (s) of the VPAs	10899, 10900, 10901, 10902, 10903, 10904, 10905, 10906, 10907, 10908, 10909, 10910, 10911, 10912, 10913, 10914, 10915, 10916, 10917, 10918, 10919, 10920, 10921
Version number of the verification and certification report	02
Completion date of the verification and certification report	26/10/2021
Monitoring period number and duration of this morning period	First Monitoring Period 01/01/2021 – 21/07/2021 (including both the days)
Version number of the monitoring report to which this report applies	Version 4.0 (Dated: 26/10/2021)
Activity Requirements applied	Community Services Activities
Product Requirements applied	GHG Emission Reduction & Sequestration
Coordinating/managing entity (CME)	UpEnergy Group
Host Country	Uganda
Applied methodologies and standardized baselines	AMS-II.G., version 05, “Energy efficiency measures in thermal applications of non-renewable biomass”
Mandatory sectoral scopes	3: Energy demand
Conditional sectoral scopes, if applicable	Not applicable
Name and UNFCCC reference number of the VVB	E-0052: Carbon Check (India) Private Ltd.
Name, position and signature of the approver of the verification and certification report	Amit Anand, CEO 

SECTION A. Executive summary

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Introduction:

The Co-ordinating Managing Entity/Project Participant has appointed the VVB, Carbon Check (India) Private Ltd. (CCIPL) to perform an independent verification of the GS Programme of Activities, "Up Energy Improved Cookstove Programme, Uganda" in Uganda (hereafter referred to as "Programme of Activities or PoA") for the VPAs titled "Up Energy Improved Cookstove Programme, Uganda – CPA No 001"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 002"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 003"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 004"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 005"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 006"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 007"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 008"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 009"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 010"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 011"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 012"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 013"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 014"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 015"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 016"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 017"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 018"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 019"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 020"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 021"; "Up Energy Improved Cookstove Programme, Uganda – CPA No 022" and "Up Energy Improved Cookstove Programme, Uganda – CPA No 023".

The PoA involves replacement of less efficient cooking stoves using woody biomass with improved cooking stoves (ICS) which are more efficient. The ICS distributed under VPAs of the PoA are more efficient in transferring heat from the fuel to the pot when compared to the stoves typically used in baseline. By replacing inefficient stoves, the PoA will save on consumption of woody biomass.

The VPAs are designed to generate emission reductions by distribution of the fuel-efficient wood / charcoal stoves. The fuel-efficient cook stoves are replacing the less efficient baseline stoves in common use (baseline scenario). The CME and VPA implementer are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the component project activities.

This report summarises the findings of the verification of the project, performed on the basis of paragraph 62 of the CDM Modalities & Procedures and GS4GG requirements /B10/, as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the CDM Executive Board. Verification is required for all registered CDM project activities intending to confirm their achieved emission reductions and proceed with request for issuance of VERs. This report contains the findings and resolutions from the verification and a certification statement for the certified emission reductions.

Objective:

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

Certification is the written assurance by a VVB that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and certify emission reductions reported for the “Up Energy Improved Cookstove Programme, Uganda” in the host country Uganda for the period 01/01/2021 – 21/07/2021 (inclusive of both the dates).

The purpose of verification is to review the monitoring results and verify that the monitoring was implemented according to the monitoring methodology and the monitoring plan in the TRF-PoA /CPAs /B04/ and used to confirm that the reductions in anthropogenic emissions by sources, are sufficient, definitive and presented in a concise and transparent manner. CCIPL’s objective is to perform a thorough, independent assessment of the implementation of the registered programme of activities / VPA-DDs /B04/.

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

Scope:

The scope of the verification is:

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

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

The verification comprises a review of the monitoring report covering the monitoring period from 01/01/2021 – 21/07/2021and based on the registered/included VPA-DDs including the monitoring plan, emission reduction calculation spreadsheet, monitoring methodology and all related evidence provided by project participant.

The verification team assigned by the VVB concludes that the TRF-PoA (Version 3.0, dated 04/10/2021) /B04/, VPA 10899 to VPA 10921 (Version 3.0 dated 15/07/2021) as described in the VPA-DDs /B04/ and the monitoring report (version 3.0; dated 29/07/2021) /2/, meet all relevant requirements of the GS4GG requirements /B10/ and UNFCCC for CDM project activities including article 12 of the Kyoto Protocol and paragraph 62 of CDM M & P, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The verification has been conducted in-line with the GS4GG requirements /B10/ and CDM VVS for PoAs requirements Version 02.0 /B01-1/.

The component project activities were correctly implemented according to selected monitoring methodology, monitoring plan and the approved revised VPA-DD/s. The monitoring system was

implemented, maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. Through the review and remote interviews, the verification team confirms that the PoA has resulted in 440,618 tCO_2e emission reductions during the first monitoring period.

CCIPL, as a VVB, is therefore pleased to issue a positive verification opinion expressed in the attached Certification statement.

SECTION B. Verification team

B.1. Verification team, technical reviewer and approver[1]

Carbon Check (India) Private Ltd. has appointed a competent team as per the UNFCCC Accreditation Standard, GS4GG requirements and CCIPL's internal procedures. Further details regarding team competence can be found in Appendix 2. The team is outlined below:

No.	Role	Type of resource	Last name	First name	Affiliation (e.g., name of central or other office of VVB or outsourced entity)
1.	Team Leader/Technical Expert	IR	Agarwalla	Sanjay Kumar	CCIPL
2.	Trainee Assessor	IR	Rizwan	Sumbul	CCIPL
3.	Technical Reviewer	IR	Singh	Vikash Kumar	CCIPL
4.	Approver	IR	Anand	Amit	CCIPL

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.	Human Error: Recording and reporting of the information in the ER spreadsheet.	*Medium*	*All the input data in the ER spreadsheet including sales database, determination of parameter for efficiency testing including data calculation. This includes all the parameters to be monitored ex-post as per the PoA-DD/VPA-DDs /B04/.*	*The risk was mitigated by the training of the personnel involved in the data capture, calculation and by following the monitoring responsibilities. The training records were reviewed which were also confirmed during the remote interviews. Verification team, based on the above, confirms that the risk is appropriately mitigated.*

[1] Confirming to the GS requirements of paragraph 2.2 of RU 2020 PR - PR, V1.2 (validation and verification by same VVB), VVB confirms that although validation for the transition of this PoA along with the VPAs from CDM to GS4GG was carried out by Carbon Check, but the validation team was different from the verification team. The validation team was as follows: Team Leader - Amit Anand; Trainee Assessor - Pallavi Ganesh Gedam.

2.	*Information System: Use of spreadsheets without adequate controls related to data changes/updates, version tracking, traceability, security*	*Medium*	*The data is recorded in the spreadsheets based on the raw data collected during the field visits. The access to the spreadsheets for calculation of ERs, monitoring and sales database and Stove efficiency testing records is controlled.*	*The identified risk was mitigated by managing access to the records. It was confirmed through interviews that the raw data is collected by the field personnel and then transmitted and stored electronically to the CME's office. The data quality control is maintained by the CME.*
3.	*Accuracy of the measuring equipment*	*Low*	*Check the calibration records for the measurement equipment used for efficiency test.*	*The risk due to accuracy of the measuring equipment was ensured by planning to check calibration certificates of the measuring equipment used for stove efficiency (water boiling tests).*
4.	*Competence of personnel involved in conducting standardized tests viz., WBT*	*Medium*	*Interview of the personnel involved and check the training records / accreditation certificates (applicable in case of institutions) involved in conducting such tests.*	*The risk was mitigated by reviewing the training records of the personnel involved in the conducting such tests and by following the monitoring responsibilities. For institutions involved in conducting such tests their accreditation certificates were checked to establish their competence for conducting such tests. The training records and certificates were reviewed which also confirmed during the interviews.*
5.	*Sample*	*Medium*	*Sample size is suitable and the surveyed households at the VPA level are random.*	*Cross-check the procedure to identify the sample size against the sampling guideline and standard and confirm the sample size is calculated correctly.*

C.2. Consideration of materiality in conducting the verification

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The threshold of materiality was evaluated based on §13 of "Guideline: Application of materiality in verifications" Version 02.0 /B08/ and §308 of CDM VVS for PoAs, version 02.0 /B01-1/. It was concluded that the materiality threshold applicable to the project activity based on actual emission reductions achieved is 5% of 440,618 tCO_2e which is equal to 22,031 tCO_2e.

In planning the verification, the verification team took cognizance of §11 and 12 of the "Guideline: Application of materiality in verifications" Version 02.0 /B08/. A materiality threshold of 22,031 tCO_2e is determined in line with §308 (d) of CDM VVS for PoAs, version 02.0.

Based on the above, activities in which risks were assessed were:

1. Monitoring system including the data input procedure (including relevant personnel and applicable template forms used)
2. Copy of the agreement between household and Project Participant (s) (origin of data)
3. Stove unique ID system
4. ER sheet (application of data)

5. Data flow
6. Data control procedures
7. Monitoring survey records
8. Stove efficiency test (WBT) records

In conducting the verification, VVB took cognizance of §13-17 of the "Guideline: Application of materiality in verifications" Version 02.0 /B08/ and based on the input of data from different sources checked through sampling of records during remote interviews. Data flow was checked through comparison of data in hand-written forms /5/, electronic database /6/ and ER sheet /4/. The competence of the personnel involved in conducting the stove efficiency testing, recording of data and calculation of the emission reductions data has been checked by the verification team by means of remote interviews.

The risks identified can be mitigated through cross check with all sets of documents. The verification team performed the following checks in order to mitigate the effects of the above-identified sources of error:

Mitigation of Human error risks: The verification team mitigated the risk by checking the training records of the personnel and assessing their competencies, skills, monitoring / testing procedure followed, understanding of the monitoring survey form / WBT protocol and testing procedure etc. during the remote interviews. Further, data was crosschecked with the ER calculation spreadsheet /4/ and the raw data.

Mitigation due to error in Information system: Verification team by conducting interviews with the personnel responsible for such activities mitigated the risk due to error in information system. It was confirmed through interviews that the raw data is collected by the field personnel and then transmitted and stored electronically at CME's office. The data quality control is maintained by the CME.

Accuracy of the measuring equipment: The risk due to inaccuracy in measurements was mitigated by reviewing calibration certificates of all the project equipment.

Competence of personnel involved in conducting standardized tests viz., WBT: Verification team has reviewed the abilities, qualifications and recognition of involved personnel and institutions of the measuring team involved in the WBT. The WBT has been carried by CIRCODU. The WBT has been carried out by the well-trained personnel and training certificate of the personnel has been provided to the verification team in this respect /10/. The training content /10/ has also been provided to the verification team. The verification team based on remote interviews and review of competency documents /18/ and training records /10/ confirms that the team was qualified to carry out the WBT in line with the protocol.

Mitigation due to error in Sampling: The verification team mitigated the risk by checking the ER sheet /04/ for each VPAs, list of random samples /14/ generated for monitoring surveys for VPAs and sample size calculation sheet /04/ and interviews with personnel responsible for the same.

In conducting the verification, VVB took cognizance of §13-17 of the "Guideline: Application of materiality in verifications" (version 02.0) /B08/ and based on the input of data from different sources checked through sampling of records during remote interviews. Some mistakes were identified and subsequently corrected. These findings are detailed in Appendix 4 and they were successfully closed. Therefore, related identified mistakes as listed in findings in Appendix 4 to this report have been determined to be immaterial. All identified inconsistencies and clarification requests have been successfully closed.

Based on the assessment carried out, CCIPL confirms with a reasonable level of assurance that the claimed emission reductions are free from material errors, omissions or misstatements.

SECTION D. Means of verification

D.1. Desk/document review

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The verification was performed primarily based on the review of the Monitoring report /1/ and the supporting documentation. This process included review of data and information presented to verify their completeness and review of the monitoring plan and monitoring methodology /B02/. Documents reviewed or referenced during the verification are listed in Appendix 3 below.

D.2. On-site inspection

In the view of current situations where travel restrictions have been put in place around the world due to COVID-19 pandemic, the VVB has decided to conduct the verification remotely (without on-site inspection) for the project in accordance with the provisions of paragraph 4.1.1. (b) of Rule Update: COVID 19: Interim Measures, dated 17/05/2021 version.04 which states:

"*If site visit cannot be postponed due to significant impact of delaying the site visit on VVB and/or project developer due to timeline/commitment as per validation/verification or GS-VERs delivery agreement, VVB may replace mandatory on-site visits with remote audits. The audit may include but not limited to validation, verification, the inclusion of VPAs, design change review etc*."

The alternative means used for the purpose of verification are demonstrated as follow:

The verification team has carried out remote interviews in order to assess the information included in the monitoring report and monitoring measurement procedures adopted during the monitoring period. During the desk review, the relevant monitoring records were checked. Previous periodic monitoring reports and verification reports (for CDM), photographs of the instruments used for WBT, soft copy of original survey records and WBT records were used to cross check consistency of information.

Furthermore, monitoring was not conducted for this monitoring period (i.e. GS MP1). There was no change in the ICS population size in GS MP1 (current monitoring) with respect to CDM MP7. The verification team deemed the monitoring results established in CDM MP7 (monitoring for CDM MP7 was conducted in the month of August 2020 to October 2020) valid till end of GS MP1 (21/07/2021) as it is within one year and explained below:

Paragraph 27 of "General Guidelines for SSC CDM Methodologies" version 23.1 states:

"*PA/CPAs may apply the result of the surveys for monitoring period up to 12 months after the date of the survey if:*
(a) The average lifetime of the units is known and is four years or more.
(b) At least 50 per cent of the distributed units were functional in the previous survey undertaken by PAs/CPAs".

Footnote 4 of this guidelines further states "*In order to apply the survey results for the monitoring period after the survey date, the requirements of biennial sampling should be met i.e. survey results show the confidence/precision of 95/10*".

The verification team confirms that all the above conditions are satisfied for this monitoring period, i.e. (a) the average lifetime of the project stoves is more than 4 years; (b) In the previous survey undertaken by the CME, more than 50 percent of the distributed ICS were operational and (c) 95/10 confidence/precision of the survey result is met.

Hence the usage of the monitoring results established in CDM MP7 being used GS MP1 is deemed acceptable to the verification team. The results of sampling surveys for CDM MP7 were already verified by the VVB by using acceptance sampling during MP7 verification remote interviews carried out on 12/12/2020 and hence no further sampling has been applied by the verification team during the current monitoring period.

Through the review of validation reports, previous verification reports, comparing the relevant evidence and interview with the CME's representatives through telephone / skype, CCIPL has confirmed that the project is implemented in line with the PoA-DD / VPA-DDs during the monitoring period. There is no change of the project design, operation and monitoring plan.

Remote interviews were performed by verification team in order to assess the following:

Remote on-site inspection and interviews: 27/07/2021				
No.	**Activities performed remotely**	**Site location**	**Date**	**Team member**
1.	An assessment of the implementation and operation of the registered project activity as per the registered PoA-DD, VPA-DDs.	Remote interviews	27/07/2021	Sanjay Kumar Agarwalla Sumbul Rizwan
2.	A review of information flows for generating, aggregating and reporting the monitoring parameters	Remote interviews	27/07/2021	Sanjay Kumar Agarwalla Sumbul Rizwan
3.	Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the VPA-DD	Remote interviews	27/07/2021	Sanjay Kumar Agarwalla Sumbul Rizwan
4.	A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources	Remote interviews	27/07/2021	Sanjay Kumar Agarwalla Sumbul Rizwan
5.	A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the VPA-DD and the selected methodology and corresponding tool(s), where applicable	Remote interviews	27/07/2021	Sanjay Kumar Agarwalla Sumbul Rizwan
6.	A review of calculations and assumptions made in determining the GHG data and emission reductions	Remote interviews	27/07/2021	Sanjay Kumar Agarwalla Sumbul Rizwan
7.	An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters	Remote interviews	27/07/2021	Sanjay Kumar Agarwalla Sumbul Rizwan

D.3. Interviews

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Kartik	Anantha	UpEnergy	27/07/2021	Project implementation and operation, monitoring procedure, data and information flow, Quality Assurance – Management and operating system, Monitoring records, MR and ER calculation	Sanjay Kumar Agarwalla Sumbul Rizwan
3.	Kumarswamy	C K	UpEnergy	27/07/2021	MR and ER calculation	Sanjay Kumar Agarwalla Sumbul Rizwan
4.	Kaliro	Nabirye (Stove ID: KEE22566)	End User	12/12/2020	Remote interviews	Sanjay Kumar Agarwalla

5	Mukono	Jamilu (Stove ID: ULU7000)	End Users	12/12/2020	Remote interviews	Sanjay Kumar Agarwalla
6	Masaka	Kasagga Annet (Stove ID: EEU05085)	End Users	12/12/2020	Remote interviews	Sanjay Kumar Agarwalla
7	Katerega	Katusabe (Stove ID: UA01151)	End Users	12/12/2020	Remote interviews	Sanjay Kumar Agarwalla
8	Bufumbo cell	Kizibwe (Stove ID: KME12564)	End Users	12/12/2020	Remote interviews	Sanjay Kumar Agarwalla
9	Kireka	Salome Kiwanuka (Stove ID: BBSSYY88)	End Users	12/12/2020	Remote interviews	Sanjay Kumar Agarwalla
10	Nakasongola	Prossy (Stove ID: UA01169)	End Users	12/12/2020	Remote interviews	Sanjay Kumar Agarwalla
11	Linenamabal	Regina K (Stove ID: SST21544)	End Users	12/12/2020	Remote interviews	Sanjay Kumar Agarwalla
12	Ssebagala	Mugirya Wilson	Local Council Chairman, Tororo District	27/07/2021	Remote interview	Sanjay Kumar Agarwalla

D.4. Sampling approach

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As assessed in above sections, emission reductions for the twenty three VPAs, (VPA 10899 to VPA 10921) are being claimed for this monitoring period and the total population of the stoves under these twenty three VPAs are as below:

Sl. No.	VPA Reference No.	Number of ICS Distributed
1	GS 10899 (VPA 001)	11,279
2	GS 10900 (VPA 002)	18,000
3	GS 10901 (VPA 003)	18,000
4	GS 10902 (VPA 004)	18,000
5	GS 10903 (VPA 005)	18,000
6	GS 10904 (VPA 006)	18,000
7	GS 10905 (VPA 007)	18,000
8	GS 10906 (VPA 008)	18,000
9	GS 10907 (VPA 009)	18,000
10	GS 10908 (VPA 010)	18,000
11	GS 10909 (VPA 011)	18,000
12	GS 10910 (VPA 012)	18,000
13	GS 10911 (VPA 013)	15,000
14	GS 10912 (VPA 014)	15,000
15	GS 10913 (VPA 015)	15,000

16	GS 10914 (VPA 016)	15,000
17	GS 10915 (VPA 017)	15,000
18	GS 10916 (VPA 018)	15,000
19	GS 10917 (VPA 019)	15,000
20	GS 10918 (VPA 020)	15,000
21	GS 10919 (VPA 021)	7,000
22	GS 10920 (VPA 022)	7,000
23	GS 10921 (VPA 023)	6,839
Total		**350,118**

The monitoring parameters required to be monitored through the sampling plan are:
1. The thermal efficiency of the ICS distributed (%) (η_{new})
2. The average usage rate of the appliance (U_y)
3. The quantity of woody biomass used in the project activity by traditional stoves (μ_{old})

Stratified sampling was applied by the CME for selection of the monitoring samples with 95/10 confidence/precision for cross-VPA sampling for all the parameters which is deemed acceptable as per the TRF PoA/ CPAs. For the thermal efficiency of the stoves (η_{new}) and the average usage rate of the appliance (U_y), sampling frames were chosen for the respective models of stoves distributed and considered for monitoring separately whereas the quantity of woody biomass used in the project activity by traditional stoves (μ_{old}) sampling frame was chosen for the vintage wise stove distributed (which is in line with the PoA-DD, page 40 where it is stated "*A weighted average of stove sales for each vintage will be applied*"). Please refer to the section E.3.4.3 of this report on detailed assessment on sampling plan opted by the CME.

As per paragraph 25 of the Sampling Standard, version 09 /B07/, the verification team has to verify whether the project participants or the coordinating/managing entity have implemented the sampling and surveys according to the sampling plan in the registered monitoring plan. The verification includes determining:
(a) Whether the required confidence/precision has been met;
(b) Whether the selected sample was representative of the population.

SECTION E. Monitoring was not conducted for this monitoring period (i.e. GS MP1). The results of sampling surveys for CDM MP7 were already verified by the VVB by using acceptance sampling during MP7 verification remote interviews carried out on 12/12/2020 and hence no further sampling has been applied by the verification team during the current monitoring period. Please refer to section D.2 for further details. Also please refer to section D.4 of CDM MP7 Verification Report for the details of the sampling approach by the CME including the acceptance sampling applied by the verification team /B09/[2]. Verification findings

E.1. General

E.1.1. Compliance of the monitoring report with the monitoring report form

Means of verification	DR, I
Findings	-
Conclusion	CME has used the Monitoring report form for GS4GG Monitoring report and Gold Standard Sustainability Monitoring Report,, Version 1.1 /B03/. Verification team confirms that the latest available version of the Monitoring report template /B03/ has

[2] https://cdm.unfccc.int/UserManagement/FileStorage/LTDXUBI32R47G80CMOFPAJZ16S9YQW

	been used by the CME and the MR is in compliance of the monitoring report form and instructions therein /B03/. This confirms compliance with the §338 and §339 of CDM VVS for PoAs, version 02.0 /B01-1/and GS4GG requirements /B10/.

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

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Not Applicable

E.2. Programme of activities

E.2.1. Compliance of the programme implementation with the registered programme design document

Means of verification	Document Review, Interview
Conclusion	CCIPL by means of remote interviews and document review, assessed that all physical features (technology, project equipment, and monitoring equipment) of the included VPas in the TRF-PoA /B04/ are in place and that the coordinating/managing entity has operated the PoA and the VPas as per the TRF-PoA /B04/ and the TRF-CPAs /B04/. There are no deviations or proposed or actual changes in the implementation or operation of the PoA and the included VPAs. The verification team confirms actual operation of the VPAs and PoA implementation and operation in compliance with the TRF-PoA / CPAs /B04/ in order to confirm the compliance of § 340, § 341 and § 342 of CDM VVS for PoAs, Version 02.0 /B01-1/ and GS4GG requirements /B10/.

E.2.2. Implementation and operation of the management system

Means of verification	Document Review, Interview
Conclusion	The PoA management system including the record-keeping system has been explained in the TRF-PoA /B04/. During the course of verification, verification team based on review of provided documents and remote interviews has assessed this management system. Verification team evaluated the management systems in place to implement the monitoring of the project activity. This included the roles and responsibilities of the monitoring staff, data collection, transfer and aggregation procedures, data storage and archiving procedure for the monitoring system. Monitoring surveys were conducted by an external independent consultant /11-2/ and WBTs have been done by a third party, Center for Integrated Research and Community Development Uganda (CIRCODU) /11-1/ during CDM MP7. There is no change in the ICS population size in GS first verification with respect to CDM MP7 and MP8. The verification team deemed the monitoring results established in CDM MP7 (monitoring for MP7 was conducted in the month of August 2020 to October 2020) valid till end of GS MP1 (21/07/2021) as it is within one year. Hence the usage of the monitoring results established in CDM MP7 being used GS MP1 is deemed acceptable to the verification team. The results of sampling surveys for CDM MP7 were already verified by the VVB by using acceptance sampling during MP7 verification remote interviews carried out on 12/12/2020 and hence no further sampling has been applied by the verification team during the current monitoring period. In order to ensure completeness and accuracy of monitoring information, electronic database is operated and maintained by the VPA implementer. This information is further maintained by the CME, who verifies the reported sales with the number of stoves produced by the manufacturer. The data is further periodically checked by

	the CME to ensure there is no double counting. This provision for the avoidance of double counting as outlined in the PoA management system has been verified by means of review records of sales database /6/ and remote interviews during the course of verification. It was confirmed during the remote interviews and by checking the monitoring system that all the roles and responsibilities related to monitoring are fulfilled by representatives of CME and the VPA implementer. The responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan /B04/. The details about monitoring system have been provided in the Monitoring report /1/. The data flow and management and reporting structure was also checked during the remote interviews. The verification team confirms that the monitoring management system of the CDM PoA is in place, with the responsibilities properly identified and in place. This confirms the compliance of § 340 (a) and § 347 (b) (iv) of CDM VVS PoAs. Version 02.0 /B01-1/ and GS4GG requirements /B10/.

E.3. Component project activities

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

Means of verification	Document Review, Interview
Conclusion	The implementation status of the PoA and the component project activities is: **Project Participants:** UpEnergy Group **Title of PoA:** Up Energy Improved Cookstove Programme, Uganda **GS Reference No:** PoA – GS 10898 GS 10899 (VPA 001); GS 10900 (VPA 002) GS 10901 (VPA 003); GS 10902 (VPA 004) GS 10903 (VPA 005); GS 10904 (VPA 006) GS 10905 (VPA 007); GS 10906 (VPA 008) GS 10907 (VPA 009); GS 10908 (VPA 010) GS 10909 (VPA 011); GS 10910 (VPA 012) GS 10911 (VPA 013); GS 10912 (VPA 014) GS 10913 (VPA 015); GS 10914 (VPA 016) GS 10915 (VPA 017); GS 10916 (VPA 018) GS 10917 (VPA 019); GS 10918 (VPA 020) GS 10919 (VPA 021); GS 10920 (VPA 022) GS 10921 (VPA 023) **Applied Baseline and monitoring methodology:** AMS-II.G, Version 05 **Project Scale:** Small scale **Location of the project activity:** Unganda **Reported monitoring Period verified in this verification:** 01/01/2021 to 21/07/2021 (both days inclusive) As a part of the remote interviews, the verification team was able to confirm that the Programme of activities and the component project activities' implementation are in accordance with the project description contained in the TRF-PoA and included VPA-DDs /B04/.

The VPAs include distribution of energy efficient improved cooking stoves. The VPA implementer is UpEnergy Uganda Ltd. The portable improved cook stoves (ICS) under the VPAs use charcoal/wood /7/ as fuel. These ICSs are efficient in transferring heat from the fuel to the pot, thus saving charcoal/wood fuel compared to the traditional stoves.

The number of stoves deployed under each VPAs have been confirmed by the monitoring database /6/ and as stated below:

Sl. No.	VPA Reference No.	Number of ICS Distributed
1	GS 10899 (VPA 001)	11,279
2	GS 10900 (VPA 002)	18,000
3	GS 10901 (VPA 003)	18,000
4	GS 10902 (VPA 004)	18,000
5	GS 10903 (VPA 005)	18,000
6	GS 10904 (VPA 006)	18,000
7	GS 10905 (VPA 007)	18,000
8	GS 10906 (VPA 008)	18,000
9	GS 10907 (VPA 009)	18,000
10	GS 10908 (VPA 010)	18,000
11	GS 10909 (VPA 011)	18,000
12	GS 10910 (VPA 012)	18,000
13	GS 10911 (VPA 013)	15,000
14	GS 10912 (VPA 014)	15,000
15	GS 10913 (VPA 015)	15,000
16	GS 10914 (VPA 016)	15,000
17	GS 10915 (VPA 017)	15,000
18	GS 10916 (VPA 018)	15,000
19	GS 10917 (VPA 019)	15,000
20	GS 10918 (VPA 020)	15,000
21	GS 10919 (VPA 021)	7,000
22	GS 10920 (VPA 022)	7,000
23	GS 10921 (VPA 023)	6,839
Total		350,118

The annual energy savings in GWh_{th} for the VPAs for the monitoring period were as follows:

VPA	GWh_{th}	Comment
GS 10899 (VPA 001)	109.63	In all the cases, energy savings is less than the small-scale threshold of 180 GWh_{th} for Type II small scale project activities
GS 10900 (VPA 002)	174.96	
GS 10901 (VPA 003)	174.96	
GS 10902 (VPA 004)	174.96	
GS 10903 (VPA 005)	174.96	
GS 10904 (VPA 006)	174.96	
GS 10905 (VPA 007)	174.96	
GS 10906 (VPA 008)	174.96	
GS 10907 (VPA 009)	174.96	
GS 10908 (VPA 010)	174.96	
GS 10909 (VPA 011)	174.96	
GS 10910 (VPA 012)	174.96	
GS 10911 (VPA 013)	136.25	

GS 10912 (VPA 014)	136.25
GS 10913 (VPA 015)	136.25
GS 10914 (VPA 016)	136.25
GS 10915 (VPA 017)	136.25
GS 10916 (VPA 018)	136.25
GS 10917 (VPA 019)	136.25
GS 10918 (VPA 020)	136.25
GS 10919 (VPA 021)	63.58
GS 10920 (VPA 022)	63.58
GS 10921 (VPA 023)	62.12

It was confirmed that UpEnergy Group is the Coordinating/Managing Entity for the PoA. The actual component project activity/ies are in line with the TRF-CPAs /B04/. UpEnergy Uganda Ltd is also the VPA implementer for the VPAs.

The information (including data and variables) provided in the MR /2/ is in line with the details provided in the TRF-CPAs /B04/.

CCIPL's verification team considers the project description of the project contained in the TRF-PoA and the TRF-CPAs /B04/ to be complete and accurate. The VPAs comply with the relevant methodology, tools, forms and guidance.

In accordance with §342 of CDM VVS for PoAs, version 02 /B01-1/, the verification team confirms that there is no information (data and variables) in the current monitoring period that are different from that stated in the approved revised VPA-DDs which has caused an increase in the estimates of GHG emission reductions.

Verification team has assessed the project in order to check any proposed or actual changes to the project design in accordance with §269 of CDM VVS for PoAs, Version 02.0. In the opinion of CCIPL, there is no change to the project design. CCIPL's verification team confirms that the VPAs are implemented within the boundary of the PoA as described in the TRF PoA-DD.

In accordance with §342 (c) of CDM VVS for PoAs, Version 02.0 /B01-1/, information (data and variables) provided in the monitoring report that are different from that stated in the approved revised VPA-DDs /B04/, have been assessed. The assessment is summarized below:

Parameter	Ex-ante value in the VPA-DDs	Actual operation for the reported monitoring period	Assessment by the verification team
Number of appliances (N_y)	VPA 1- 14,430; VPA 2- 14,831; VPA 3- 14,831; VPA 4- 14,831; VPA 5- 14,856; VPA 6- 14,831; VPA 7- 14,831; VPA 8- 14,831; VPA 9- 14,831; VPA 10- 14,831; VPA 11- 14,831; VPA 12-14,831; VPA 13-15,200; VPA 14- 15,200; VPA 15- 15,200; VPA 16- 15,200;	VPA 1- 11,279; VPA 2- 18,000; VPA 3- 18,000; VPA 4- 18,000; VPA 5- 18,000; VPA 6- 18,000; VPA 7- 18,000; VPA 8- 18,000; VPA 9- 18,000; VPA 10- 18,000; VPA 11- 18,000; VPA 12-18,000; VPA13- 15,000; VPA 14- 15,000; VPA 15- 15,000; VPA 16- 15,000;	Verification team noted that the actual number of cook-stoves distributed under VPA 2 to VPA 12 are higher than the number indicated in the respective VPA-DDs /B04/. This difference is

			VPA 17- 15,200; VPA 18- 15,200; VPA 19- 15,200; VPA 20- 15,200; VPA 21- 15,200; VPA 22- 15,200; VPA 23- 15,200	VPA 17- 15,000; VPA 18- 15,000; VPA 19- 15,000; VPA 20- 15,000; VPA 21- 7,000; VPA 22- 7,000; VPA 23- 6,839	acceptable based on the following: • VPA-DDs do not restrict the number of cook stoves as the stated values are just indicative values (as explained below); • Energy savings in the VPAs during the monitoring period is less than the threshold limit of 180 GWh_{th}/year for small scale project activities. Verification team further noted that the cook-stove numbers as indicated in the approved revised VPA-DDs is not a fixed number (thus this cannot be categorized under a design change) and this assessment has been based on review of following statement in the VPA-DDs: *"Though we*

					have calculated the installation cap of this VPA is 14,831 operational ICS per year. Please note that this represents operational stove numbers only and is based on other variables as well which might change ex-post during the crediting period. As long as the VPA does not exceed the 180 GWh_{th} energy savings/year threshold, any number of operational stoves can be added in the VPA. This relation will vary according to the results obtained from the field on the monitoring of the ex-post parameters for each verification period in the specific VPA". The number of cook-stoves stated in the VPA-DDs is only an indicative number based on the

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td>small-scale annual energy saving threshold of 180 GWh_{th}/year. The verification team noted that with the increase in number of stoves, the VPAs still remain under the limit of small scale and hence this is not deemed as any design change.</td></tr>
<tr><td></td><td></td><td>Efficiency of the ICS (η_{new})</td><td>VPA 1- 27.1%;
VPA 2- 26.0%;
VPA 3- 26.0%;
VPA 4- 26.0%;
VPA 5- 26.0%;
VPA 6- 26.0%;
VPA 7- 26.0%;
VPA 8- 26.0%;
VPA 9- 26.0%;
VPA 10- 26.0%
VPA 11- 26.0%
VPA 12- 26.0%
VPA 13 to VPA 23 - 34.51%
<table><tr><th>Stove Type</th><th>Thermal Efficiency</th></tr><tr><td>EZY</td><td>27.10%</td></tr><tr><td>SHS</td><td>26.00%</td></tr><tr><td>AES</td><td>25.30%</td></tr><tr><td>SHS-GBE</td><td>30.00%</td></tr><tr><td>SHS-BOLD</td><td>37.30%</td></tr><tr><td>SHS-ILF</td><td>38.00%</td></tr><tr><td>Lugwana</td><td>34.75%</td></tr><tr><td>SpendSmart</td><td>36.35%</td></tr><tr><td>Energy Empire</td><td>33.00%</td></tr><tr><td>BME</td><td>31.00%</td></tr><tr><td>FSL</td><td>35.70%</td></tr></table></td><td>Weighted average values of 31.83 % for all the VPAs together
<table><tr><td>Stove model</td><td>Average efficiency</td></tr><tr><td>AES</td><td>22.82%</td></tr><tr><td>BME</td><td>30.48%</td></tr><tr><td>Energy Empire</td><td>31.79%</td></tr><tr><td>EZY</td><td>21.24%</td></tr><tr><td>FSL</td><td>34.37%</td></tr><tr><td>Lugwana</td><td>33.95%</td></tr><tr><td>SHS</td><td>22.84%</td></tr><tr><td>SHS-BOLD</td><td>35.52%</td></tr><tr><td>SHS-GBE</td><td>28.66%</td></tr><tr><td>SHS-ILF</td><td>36.10%</td></tr><tr><td>SpendSmart</td><td>35.13%</td></tr></table></td><td>Monitoring was not conducted for this monitoring period. Please refer to section D.2 and D.4 above.

The weighted average efficiency of the cook-stoves (η_{new}) monitored ex-post for the current monitoring period is slightly higher than the estimated ex-ante values in the VPA-DDs. Verification team noted that the assumed value of thermal efficiency in the VPA-DDs of 26% was only for SmartHome</td></tr>
</table>

					Charcoal stoves and 25.3% for AES model stoves (for AES model stoves the actual monitored thermal efficiency is 22.82% which is less than the VPA-DDs value). This weighted average value is for the 11 different implemented stove models. The VPA-DDs mention the stove models to be distributed are SmartHome Charcoal Stove and the African Energy Stove (AES) as an example. Hence the verification team deemed acceptable the other models of stoves distributed in the VPA-DDs. In actual, the VPA-DDs involve various other models of stoves and their actual monitored efficiencies are less than (for various models) the design values. The verification

				team confirms that the CME had randomly picked the samples from the different models of the stoves and conducted the WBTs. Hence the WBT results are deemed acceptable.
	Quantity of woody biomass used in the project activity by traditional stoves (μ_{old})	A value of 0 tonnes/year was assumed for VPA 1 to VPA 12 and 0.497 for VPA 13 to VPA 23 for ex ante ER estimation	0.631 tonnes/year	Monitoring was not conducted for this monitoring period. Please refer to section D.2 and D.4 above. The amount of woody biomass consumption that is consumed through the continued use of old stoves is based on the actual monitored ex-post value for the current monitoring period. The monitored value is more than the ex-ante estimated value in the VPA-DDs. As the value is based on the actual monitored values as verified during the remote interviews and survey

			records, this is deemed acceptable to the verification team.
Average usage rate of appliance (U_y)	A value of 1 was assumed for VPA 1 to VPA 12 and 0.95 for VPA 13 to VPA 23 for ex ante ER estimation	82.54%	Monitoring was not conducted for this monitoring period. Please refer to section D.2 and D.4 above. The average usage rate of the stove is based on the actual monitored ex-post value for the current monitoring period. The monitored value is less than the ex-ante estimated ex-ante value in the VPA-DDs. As the value is based on the actual monitored values as verified during the remote interviews and survey records, this is deemed acceptable to the verification team.
Emission reductions per stove/year (tCO_2)	VPA 1- 3.10; VPA 2 to VPA 12- 3.03; VPA 13 to VPA 23- 3.03;	VPA 1 to VPA 12- 2.34; VPA 13 to VPA 23- 2.18;	The ERs per stove is less than the ex-ante estimated values in the VPA-DDs.

In the opinion of CCIPL, there is no change to the project design. CCIPL's verification

	team confirms that the VPAs are implemented within the boundary of the PoA as described in the TRF-PoA /B04/ and the implementation and operation of the project activity has been conducted in accordance with the description contained in the TRF-PoA and TRF-CPAs. The verification team took cognizance of § 340, § 341 and § 342 of the CDM VVS for PoAs, version 02 /B01-1/ to conduct the verification and remote interviews in accordance with the § 321 and 322 of the CDM VVS for PoAs, version 02 /B01-1/ and GS4 GG requirements /B10/.

E.3.2. Compliance of the registered monitoring plan with applied methodologies and standardized baselines

Means of verification	Document Review, Interview
Conclusion	The verification team is able to confirm that the monitoring plan contained in the TRF-CPAs is in accordance with the approved methodology applied by the project activity, i.e. AMS-II. G, version 05 /B02/. The monitoring plan is in accordance with the approved methodology, AMS-II. G, version 05 /B02/, applied by the component project activities and as provided in the TRF-CPA /B04/. The verification took cognizance of § 343 to § 345 of CDM VVS for PoAs, Version 02.0 /B01-1/ and GS4GG requirements /B10/.

E.3.3. Compliance of monitoring activities with the registered monitoring plan

The monitoring has been carried out in accordance with the monitoring plan contained in the TRF-CPAs /B04/. This conclusion has been made based on assessment below.

E.3.3.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	Document Review, Interview
Conclusion	Verification team confirms that the Data and parameters fixed ex ante are in compliance with the TRF-CPAs /B04/ and the monitoring plan. Please refer Appendix 5 for detailed analysis of the ex-ante parameters. The verification took cognizance of § 346 of CDM VVS for PoAs, Version 02.0 /B01-1/ and GS4GG requirements /B10/.

E.3.3.2. Data and parameters monitored

Means of verification	Document Review, Interview
Conclusion	The Verification team confirms that the Data and parameters monitored are in compliance with the TRF-CPAs and the monitoring plan /B04/. A complete assessment of each of the monitored parameters has been provided in Appendix 6 of the verification report. The verification took cognizance of § 346, § 347(c), §358 and §359 of CDM VVS for PoAs, Version 02.0 /B01-1/ GS4GG Requirements/B10/.

E.3.3.3. Implementation of sampling plan

Means of verification	Document Review, Interview
Conclusion	Monitoring surveys were not conducted during the current monitoring period and the results from CDM MP7 monitoring surveys were used. Please refer to section D.2 and D.4 above. The total population of the stoves under the twenty-three VPAs considered for the monitoring period is 350,118. The monitoring parameters required to be monitored through the sampling plan are:

1. The thermal efficiency of the ICS distributed (%) (η_{new})
2. The average usage rate of the appliance (U_y)
3. The quantity of woody biomass used in the project activity by traditional stoves (μ_{old})

Across VPA stratified sampling was applied for the twenty-three VPAs by CME for selection of the monitoring samples with 95/10 confidence/precision for all the three parameters for annual monitoring which is deemed acceptable as per the TRF-PoA /B04/ and TRF-CPAs /B04/.

For the thermal efficiency of the stoves (η_{new}) and the average usage rate of the appliance (U_y), sampling frames were chosen for the respective models of stoves distributed and considered for monitoring separately whereas the quantity of woody biomass used in the project activity by traditional stoves (μ_{old}) sampling frame was chosen for the vintage wise stove distributed.

Applying the random number generator, the ICS were randomly picked from the defined population up to the required sample size as calculated by the CME /14/. The verification team confirms that the applied method for sample size calculation is in accordance with the PoA-DD / VPA-DDs /B04/.

The number of samples for each of the parameters covered during the monitoring activity is as given below:

Parameter	**Sample Size (n) required**
η_{new} (AES)	2
η_{new} (EZY)	2
η_{new} (SHS)	2
η_{new} (SHS-GBE)	2
η_{new} (SHS-ILF)	2
η_{new} (SHS-BOLD)	3
η_{new} (Lugwana)	2
η_{new} (Energy Empire)	2
η_{new} (BME)	2
η_{new} (FSL)	2
η_{new} (SpendSmart)	2
U_y (AES)	2
U_y (EZY)	2
U_y (SHS)	7
U_y (SHS-GBE)	5
U_y (SHS-ILF)	8
U_y (SHS-BOLD)	15
U_y (Lugwana)	3
U_y (Energy Empire)	3
U_y (BME)	3
U_y (FSL)	2
U_y (SpendSmart)	3
μ_{old} (2013)	2
μ_{old} (2014)	2
μ_{old} (2015)	2
μ_{old} (2016)	2
μ_{old} (2017)	2
μ_{old} (2018)	2
μ_{old} (2019)	4
μ_{old} (2020)	2

The actual sample size in all the cases was not less than either the calculated sample size or the minimum sample size as per the PoA-DD /B04/. For the mean

	parameters, Student's t-distribution has been used since the resulting sample size was less than 30 and this is deemed acceptable in line with the Standard for sampling and surveys for CDM project activities and Programme of Activities, version 09 /B07/. For the monitoring parameters Uy and μ_{old}, data were collected following a specially designed survey form. For thermal efficiency of the stoves WBTs (Water Boiling Tests) were conducted. The verification team has checked and found that for all the parameters the confidence/precision of 95/10 was met. The sampling plan implemented by the CME is in accordance with the applied approved monitoring methodology /B02/ and the PoA-DD/ TRF-CPAs /B04/. The CME has appropriately performed Stratified Random Sampling procedure in line with the applied methodology and best suited for this type of project. As the TRF-PoA /B04/ mentions the option for Stratified Random Sampling procedure, it is acceptable to the verification team. The necessary confidence / precision of 95/10 each of the parameters is met. This has been cross verified by the verification team from the supporting documents submitted /4/. The verification took cognizance of § 348 of CDM VVS for PoAs, Version 02.0 /B01-1/and GS4GG Requirements /B10/.

E.3.4. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	Document Review, Interview
Conclusion	The stove efficiency testing has been determined by WBTs conducted in line with the guidance provided by the CME in the VPA-DDs /B04/ /15/. The WBTs were conducted by a third party, CIRCODU. During the remote interviews, it was confirmed that the appointed third party has relevant experience and competence in monitoring cookstove projects in Uganda. The monitoring equipment used for conducting the stove efficiencies by WBTs are thermometer, weighing machine and moisture meter. All the monitoring equipment were duly calibrated and hence deemed acceptable /13/. The appropriate QA/QC procedures have been followed for the monitoring parameters. The verification took cognizance of section 10.2.6 of CDM VVS for PoAs, version 02 /B01-1/ and GS4GG requirements /B10/.

E.3.5. Assessment of data and calculation of emission reductions or net removals

In line with the requirement of §358 and §359 of CDM VVS for PoAs, Version 02.0 /B01-1/, the verification team has reviewed the Monitoring report /2/ and ER spread sheets /4/ to check the arithmetic calculation of the emission reductions. The equation used for the calculation is compared with those provided in the TRF-CPAs /B04/ and the methodology AMS-II.G, Version 05 /B02/.

E.3.5.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	Document Review, Interview
Conclusion	The equations for baseline emissions, as provided in the Monitoring report /1/ and confirmed with the TRF-CPAs /B04/ and the methodology AMS-II.G, Version 05 /B02/, are: SDG 13: Climate Action $ER_y = (B_{y,savings} \times Ny \times Uy) \times (f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossilfuel})$ Where:

ER_y =Emission reductions during the year y in tCO_2e

$B_{y,savings}$ =Quantity of biomass that is saved in tonnes per appliance

$f_{NRB,y}$ =Fraction of biomass saved by the project activity in year y that can be established as non-renewable biomass using survey results, national or local statistics or other sources of information (fixed ex ante as 82%)

$NCV_{biomass}$ = Net calorific value of the non-renewable biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne)

$EF_{projected\_fossilfuel}$ = Emission factor for the substitution of non-renewable biomass by similar consumer (Default value of 81.6 tCO_2/TJ).

N_y = Number of appliances of the type being deployed during the period y

U_y = Average usage rate (as opposite to drop-off) of appliances of type being deployed during period y as part of the SSC-VPA

$$By\ savings = [(B_{old} - \mu_{old}) * L] * (1 - \eta_{old} / \eta_{new})$$

B_{old} =Quantity of biomass used in the absence of the project activity in tonnes/year (4.97 as per the VPA-DDs)

η_{old} =Efficiency of the system being replaced (fixed ex ante)

η_{new} =The result obtained from independent testing is used. Efficiency of the system being deployed as part of the project activity (fraction), as determined using the Water Boiling Test (WBT) protocol. Use weighted average values if more than one type of system is being introduced by the project activity. (monitored ex post during the monitoring period)

L =Net to gross Adjustment factor (0.95) applied in accordance with AMS-II.G, ver 05

μ_{old} = Quantity of woody biomass for the continued use of old stoves

From the above equation and the parameter values, emission reductions are calculated as:

Specific-case VPA reference number	Emission Reductions (tCO_2e)
GS 10899 (VPA 001)	14,578
GS 10900 (VPA 002)	23,266
GS 10901 (VPA 003)	23,266
GS 10902 (VPA 004)	23,266
GS 10903 (VPA 005)	23,266
GS 10904 (VPA 006)	23,266
GS 10905 (VPA 007)	23,266
GS 10906 (VPA 008)	23,266
GS 10907 (VPA 009)	23,266
GS 10908 (VPA 010)	23,266
GS 10909 (VPA 011)	23,266
GS 10910 (VPA 012)	23,266
GS 10911 (VPA 013)	18,118
GS 10912 (VPA 014)	18,118
GS 10913 (VPA 015)	18,118
GS 10914 (VPA 016)	18,118

	GS 10915 (VPA 017)	18,118
	GS 10916 (VPA 018)	18,118
	GS 10917 (VPA 019)	18,118
	GS 10918 (VPA 020)	18,118
	GS 10919 (VPA 021)	8,455
	GS 10920 (VPA 022)	8,455
	GS 10921 (VPA 023)	8,260
	Total	440,618

The verification team confirms that the calculation of baseline emission and emission reductions is in accordance with the applied methodological equation and the TRF-CPAs. Calculations have been checked and confirmed from the ER spread sheet /4/.

The verification took cognizance of § 358 of CDM VVS for PoAs, version 02.0 /B01-1/ andGS4GG requirements /B10/.

E.3.5.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	Document Review, Interview
Findings	-
Conclusion	There are no project emissions identified in the monitoring methodology /B02/ and the TRF-CPAs /B04/ and GS4GG requirements/B10/.

E.3.5.3. Calculation of leakage GHG emissions

Means of verification	Document Review, Interview
Conclusion	Net-to-gross adjustment factors for leakage (fixed default values of 0.95 as per AMS II.G. version 05) /B02/ was applied to the project activity to calculate Emission Reductions of this Monitoring Period. Verification team confirms that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence and calculations are done in accordance with the pre-defined formulae from TRF-CPAs /B04/.

E.3.5.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	Document Review, Interview
Conclusion	The verification team confirms that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence and calculations are done in accordance with the pre-defined formulae from TRF-CPAs. The total number of ERs achieved during the monitoring period is 440,618 tCO_2e. In summary, verification team confirms that actual emission reduction is lower than the estimate of the TRF-CPAs /B04/ for the current monitoring period. The verification took cognizance of § 358 of CDM VVS PoAs, version 02 /B01-1/ and GS4GG requirements /B10/.

Title and UNFCCC reference number of the VPA	Baseline emissions or baseline net GHG removals by sinks (tCO_2e)	Project emissions or actual net GHG removals by sinks (tCO_2e)	Leakage (tCO_2e)	GHG emission reductions or net GHG removals by sinks (tCO_2e)		
				Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
GS 10899 (VPA 001)	14,578	-	-	0	14,578	14,578
GS 10900 (VPA 002)	23,266	-	-	0	23,266	23,266
GS 10901 (VPA 003)	23,266	-	-	0	23,266	23,266
GS 10902 (VPA 004)	23,266	-	-	0	23,266	23,266
GS 10903 (VPA 005)	23,266	-	-	0	23,266	23,266
GS 10904 (VPA 006)	23,266	-	-	0	23,266	23,266
GS 10905 (VPA 007)	23,266	-	-	0	23,266	23,266
GS 10906 (VPA 008)	23,266	-	-	0	23,266	23,266
GS 10907 (VPA 009)	23,266	-	-	0	23,266	23,266
GS 10908 (VPA 010)	23,266	-	-	0	23,266	23,266
GS 10909 (VPA 011)	23,266	-	-	0	23,266	23,266
GS 10910 (VPA 012)	23,266	-	-	0	23,266	23,266
GS 10911 (VPA 013)	18,118	-	-	0	18,118	18,118
GS 10912 (VPA 014)	18,118	-	-	0	18,118	18,118
GS 10913 (VPA 015)	18,118	-	-	0	18,118	18,118
GS 10914 (VPA 016)	18,118	-	-	0	18,118	18,118
GS 10915 (VPA 017)	18,118	-	-	0	18,118	18,118
GS 10916 (VPA 018)	18,118	-	-	0	18,118	18,118
GS 10917 (VPA 019)	18,118	-	-	0	18,118	18,118
GS 10918 (VPA 020)	18,118	-	-	0	18,118	18,118
GS 10919 (VPA 021)	8,455	-	-	0	8,455	8,455
GS 10920 (VPA 022)	8,455	-	-	0	8,455	8,455

GS 10921 (VPA 023)	8,260	-	-	0	8,260	8,260
Total	**440,618**	**0**	**0**	**0**	**440,618**	**440,618**

E.3.5.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included VPA

Means of verification	Document Review
Findings	-
Conclusion	Comparison of the actual GHG emission reductions with the estimates in the included specific VPAs is given in the below table. The verification team took cognizance of § 358 of CDM VVS for PoAs, version 02 /B01-1/ and GS4GG requirements /B10/.

Title and UNFCCC reference number of the VPA	Actual values achieved by the VPAs during this monitoring period	Value estimated in ex ante calculation in the included VPA-DD(s)
GS 10899 (VPA 001)	14,578	24,767
GS 10900 (VPA 002)	23,266	24,825
GS 10901 (VPA 003)	23,266	24,825
GS 10902 (VPA 004)	23,266	24,825
GS 10903 (VPA 005)	23,266	24,825
GS 10904 (VPA 006)	23,266	24,825
GS 10905 (VPA 007)	23,266	24,825
GS 10906 (VPA 008)	23,266	24,825
GS 10907 (VPA 009)	23,266	24,825
GS 10908 (VPA 010)	23,266	24,825
GS 10909 (VPA 011)	23,266	24,825
GS 10910 (VPA 012)	23,266	24,825
GS 10911 (VPA 013)	18,118	22,731
GS 10912 (VPA 014)	18,118	22,731
GS 10913 (VPA 015)	18,118	22,731
GS 10914 (VPA 016)	18,118	22,731
GS 10915 (VPA 017)	18,118	22,731
GS 10916 (VPA 018)	18,118	22,731
GS 10917 (VPA 019)	18,118	22,731
GS 10918 (VPA 020)	18,118	22,731
GS 10919 (VPA 021)	8,455	22,731
GS 10920 (VPA 022)	8,455	22,731
GS 10921 (VPA 023)	8,260	22,731
Total	**440,618**	**547,884**

E.3.5.6. Remarks on difference from estimated value in included VPA

Means of verification	Document review
Findings	-
Conclusion	The actual emission reductions are less than the ex-ante estimated values in the VPA-DDs.

E.3.6. Assessment of reported sustainable development co-benefits

Means of verification	Not applicable (as there are no sustainable development co-benefits required as per the registered CDM PoA-DD)
Findings	-
Conclusion	Not applicable

SECTION F. Internal quality control

>>
The final verification report passed a technical review. A technical reviewer qualified in accordance with the CCIPL's qualification scheme for CDM validation and verification has performed the technical review.

SECTION G. Verification opinion

>>
Carbon Check (India) Private Ltd. has performed the first verification of the GS Programme of Activities "Up Energy Improved Cookstove Programme, Uganda" in Uganda (hereafter referred to as "Programme of Activities or PoA") for the VPAs GS 10899 to 10921 (VPA No 001 to VPA No 023).

The verification team assigned by the VVB concludes that the TRF-PoA (Version 3.0, dated 04/10/2021), VPAs GS 10899 (VPA 001) to GS 10921 (VPA 023) as described in the TRF-CPAs /B04/ and the Monitoring report (Version 03, dated 29/07/2021) /02/, meet all relevant GS4GG requirements /B10/ and requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol and paragraph 62 of CDM M& P, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The verification has been conducted in-line with the CDM VVS for programme of activities requirements version 02.0 /B01-1/.

Verification methodology and process:

The Verification team confirms the contractual relationship signed on 02/07/2021 between the VVB, Carbon Check (India) Private Ltd. and the Co-ordinating Managing Entity/ Project Participant, (UpEnergy Group). The team assigned to the verification meets the Carbon Check (India) Private Ltd.'s internal procedures including the UNFCCC and GS requirements for the team composition and competence. The verification team has conducted a thorough contract review as per UNFCCC and Carbon Check's procedures and requirements.

The verification is being performed as per the requirements described in the CDM VVS for PoAs, version 02.0 /B01-1/ and GS4GG requirements and constitutes the review and completion of the following steps:

- Reviewing the TRF-PoA (Version 2.0, date 15/07/2021), the TRF-CPAs for GS 10899 (VPA 001) to GS 10921 (VPA 023) /B04/, including the monitoring plan and the corresponding validation report/s /B04/;
- Previous CDM verification and certification reports and the monitoring reports for the previous monitoring periods /B09/;
- Desk review of the validation report, MR and other relevant documents including documents related to the project activities in emission reductions
- Review of the applied monitoring methodology (AMS-II.G, version 05);
- Review of any CMP and EB decisions, clarifications and guidance;
- Remote assessment interviews (27/07/2021)

- Resolution of CARs and CLs raised during verification (to be done)
- Issuance of Verification Report

The component project activities were correctly implemented according to the selected monitoring methodology, monitoring plan and the TRF-CPAs. The monitoring system was installed, maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. Through the review and remote interviews, the verification team confirms that the PoA has resulted in the 440,618 tCO_2e emission reductions during the first monitoring period for GS 10899 (VPA 001) to GS 10921 (VPA 023).

Verified emission reductions:

Specific-case VPA reference number	Emission Reductions (tCO_2e)
GS 10899 (VPA 001)	14,578
GS 10900 (VPA 002)	23,266
GS 10901 (VPA 003)	23,266
GS 10902 (VPA 004)	23,266
GS 10903 (VPA 005)	23,266
GS 10904 (VPA 006)	23,266
GS 10905 (VPA 007)	23,266
GS 10906 (VPA 008)	23,266
GS 10907 (VPA 009)	23,266
GS 10908 (VPA 010)	23,266
GS 10909 (VPA 011)	23,266
GS 10910 (VPA 012)	23,266
GS 10911 (VPA 013)	18,118
GS 10912 (VPA 014)	18,118
GS 10913 (VPA 015)	18,118
GS 10914 (VPA 016)	18,118
GS 10915 (VPA 017)	18,118
GS 10916 (VPA 018)	18,118
GS 10917 (VPA 019)	18,118
GS 10918 (VPA 020)	18,118
GS 10919 (VPA 021)	8,455
GS 10920 (VPA 022)	8,455
GS 10921 (VPA 023)	8,260
Total	**440,618**

CCIPL as a VVB is therefore pleased to issue a positive verification opinion in the attached Certification statement.

SECTION H. Certification statement

>>

Carbon Check (India) Private Ltd., the VVB, has performed the verification of the GS Programme of Activities, GS 10898, “Up Energy Improved Cookstove Programme, Uganda” in Uganda. The PoA involves replacement of less efficient cooking stoves using woody biomass with ICS which are

more efficient. The ICS distributed under VPAs of the PoA are more efficient in transferring heat from the fuel to the pot when compared to the stoves typically used in baseline. By replacing inefficient stoves, the PoA will save on consumption of woody biomass (either wood or charcoal made of wood).

The component project activities of the Programme of Activities are designed to generate emission reductions by distribution of the fuel-efficient charcoal / wood fuel-based cook stoves in Uganda. The CME and VPA implementer are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the component project activity/ies. It is VVB's responsibility to express an independent verification statement on the reported GHG emission reductions from the component project/s. The VVB does not express any opinion on the selected baseline scenario or on the validated and registered PoA-DD/VPA-DDs. The verification is carried out in-line with the CDM VVS and GS4GG requirements.

The verification was performed to identify the compliance of the component project/ies with implementation and monitoring requirements, and to verify the actual amount of achieved emission reductions, through obtaining evidence and remote interviews that included i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and ii) the collection of evidence supporting the reported data.

The verification is based on:

- TRF-PoA, Version 3.0 dated 04/10/2021;
- TRF-CPAs included in the PoA and its monitoring plan for the monitoring period 01/01/2021 – 21/07/2021.
- Approved CDM monitoring methodology AMS-II.G "Energy efficiency measures in thermal applications of non-renewable biomass", Version 05;
- Validation report /B04/ for the PoA and the VPA/s;
- Monitoring report Version 2.0 dated 20/07/2021, version 3.0 dated 29/07/2021 and version 4.0 dated 26/10/2021

This statement covers verification period from 01/01/2021 - 21/07/2021 (both dates included).

The VVB had raised four (04) clarification requests and three (03) corrective action request which have been resolved by the CME.

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

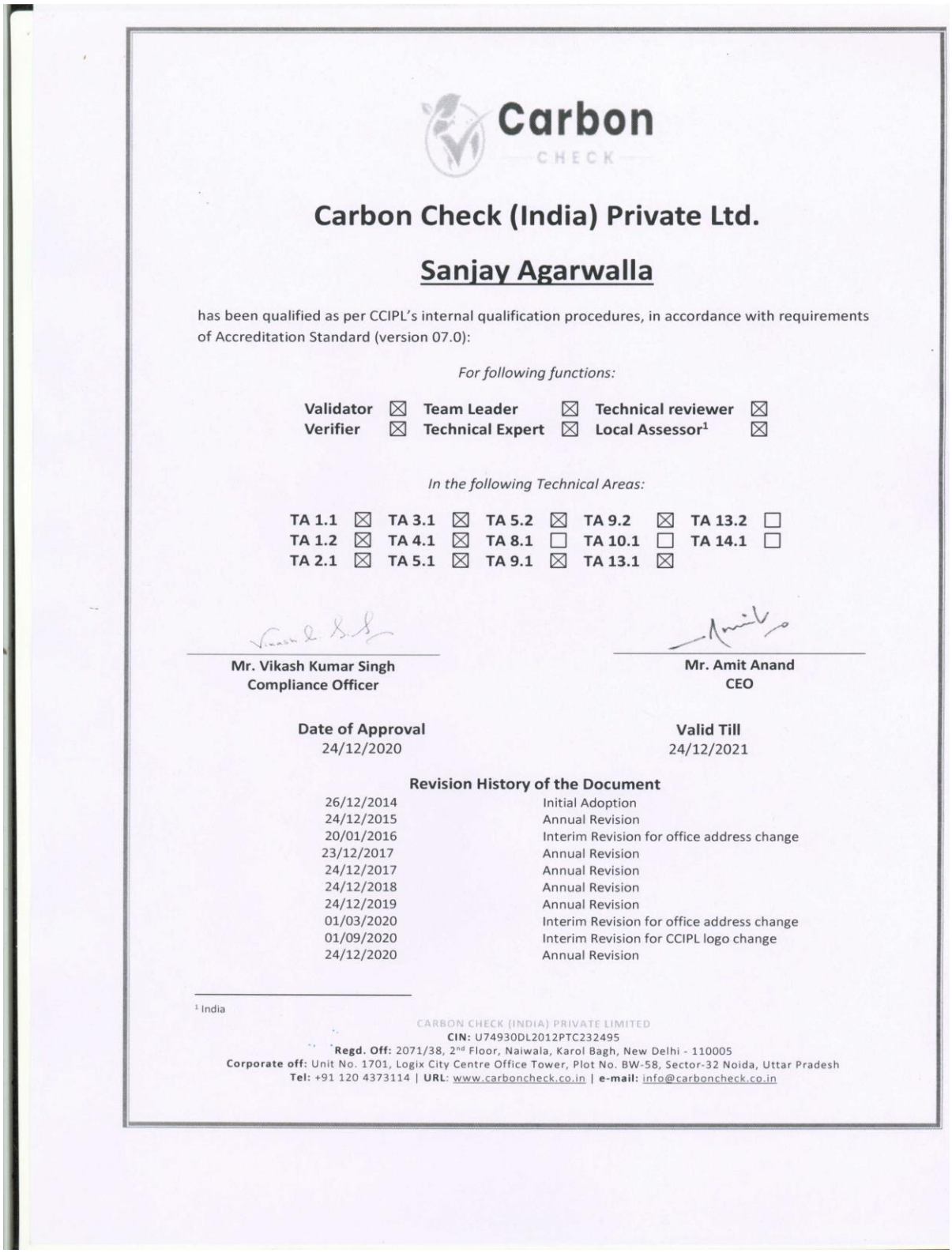
The VVB, hereby certifies that the project activity, achieved emission reductions by sources of GHG equal to 440,618 tCO_2e and all monitoring requirements have been fulfilled and is substantiated by an audit trail that contains evidence and records. The break-up of emission reduction up-to 31/12/2012 and 01/01/2013 onwards as verified during the course of verification are as below:

Item	Emission reductions up to 31 December 2012	Emission reductions from 1 January 2013 onwards
Emission reductions (t CO_2e)	0	440,618

Appendix 1. Abbreviations

Abbreviations	Full texts
AQL	Acceptable Quality Limit
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CAR	Corrective Action Request
CCIPL	Carbon Check (India) Private Ltd.
CER	Certified Emission Reduction
CIRCODU	Center for Integrated Research and Community Development Uganda
CL	Clarification Request
CME	Co-ordinating and Managing entity
VPA	Voluntary Project Activity
VPA-DD	Voluntary Project Activity Design Document
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DR	Document review
DVR	Draft Verification Report
EB	CDM Executive Board
EF	Emission Factor
EI	External individual
FA	Final Approval
FAR	Forward Action Request
FVR	Final verification Report
GACC	Global Alliance for Clean Cookstoves
GHG	Greenhouse gas(es)
GS4GG	Gold Standard for the Global Goals
GWh	Giga Watt Hour
I	Interview
IPCC	Intergovernmental Panel on Climate Change
IR	Internal resource
MP	Monitoring Period
MWh	Mega Watt Hour
MR	Monitoring Report
PoA	Programme of Activities
PoA-DD	Programme of Activities Design Document
PP	Project Participant
QC/QA	Quality control /Quality assurance
SDG	Sustainable Development Goal
TA	Technical Area
TR	Technical Review
TRF	Transition Request Form
UNFCCC	United Nations Framework Convention on Climate Change
UQL	Unacceptable Quality Limit
VVS	Validation and Verification Standard
VVB	Validation & Verification Body
WBT	Water boiling test

Appendix 2. Competence of team members and technical reviewers



Carbon Check (India) Private Ltd.

Sanjay Agarwalla

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator	☒	Team Leader	☒	Technical reviewer	☒
Verifier	☒	Technical Expert	☒	Local Assessor[1]	☒

In the following Technical Areas:

TA 1.1	☒	TA 3.1	☒	TA 5.2	☒	TA 9.2	☒	TA 13.2	☐
TA 1.2	☒	TA 4.1	☒	TA 8.1	☐	TA 10.1	☐	TA 14.1	☐
TA 2.1	☒	TA 5.1	☒	TA 9.1	☒	TA 13.1	☒		

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

Date of Approval
24/12/2020

Valid Till
24/12/2021

Revision History of the Document

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2017	Annual Revision
24/12/2017	Annual Revision
24/12/2018	Annual Revision
24/12/2019	Annual Revision
01/03/2020	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision

[1] India

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Carbon CHECK

Carbon Check (India) Private Ltd.

Vikash Kumar Singh

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator	☒	Team Leader	☒	Technical reviewer	☒
Verifier	☒	Technical Expert	☒	Local Assessor[1]	☒

In the following Technical Areas:

TA 1.1	☒	TA 3.1	☒	TA 5.2	☐	TA 9.2	☐	TA 13.2	☒
TA 1.2	☒	TA 4.1	☒	TA 8.1	☐	TA 10.1	☐	TA 14.1	☐
TA 2.1	☐	TA 5.1	☐	TA 9.1	☐	TA 13.1	☒		

Mr. Amit Anand
CEO

Date of Approval	Valid Till
24/12/2020	24/12/2021

Revision History of the Document

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2017	Annual Revision
24/12/2017	Annual Revision
24/12/2018	Annual Revision
24/12/2019	Annual Revision
01/03/2020	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision

[1] India, South Africa

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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	UpEnergy	Initial Monitoring report	Version 2.0, dated 20/07/2021	CME
2	UpEnergy	Final Monitoring report	Version 4.0, dated 26/10/2021	CME
3	UpEnergy	Emission reduction calculation spread sheets for the twenty three VPAs corresponding to /1/	Version 1.0, dated 11/02/2021	CME
4	UpEnergy	Emission reduction calculation spread sheets for the twenty three VPAs corresponding to /2/	Version 3.0, dated 29/07/2021	CME
5	UpEnergy	CDM Survey records for the monitoring period (for U_y and μ_{old}): Carried out during MP7 from Aug 2020 to Oct 2020	-	CME
6	UpEnergy	VPA distribution records including evidence for the dates of distribution	-	CME
7	UpEnergy	Stove specifications for EZY, SHS, AES, SHS-GBE, SHS-BOLD, SHS-ILF, Lugwana, SpendSmart, Energy Empire, BME and FSL models used under the monitoring period	-	CME
8	UpEnergy	Proof of Carbon Credits waiver by End user	-	CME
9	UpEnergy	Sample stoves sales receipt / user agreement	-	CME
10	UpEnergy	Training records of CIRCODU / Surveying personnel on the following aspect: • Conducting of the monitoring survey using the questionnaire • Checking of the quantity of fuel usage in each of the sampled households for the use of traditional stove • Handling and use of measuring instruments • Conducting water boiling tests using WBT Protocol version 4.2.3 • Data recording		CME
11	UpEnergy	1. Copy of contract in between UpEnergy and CIRCODU for conducting WBTs 2. Copy of contract in between Upenergy and external independent consultant for conducting Surveys		
12	UpEnergy	1. Water boiling test records (calculation spread sheets and original data sheet): Carried out during MP7 from Aug 2020 to Oct 2020 2. Records of the stoves on which WBT was conducted including the replacement stoves provided to the end users	-	CME
13	UpEnergy	Calibration certificate for each of the monitoring equipment (thermometer, weighing scale, Moisture meter)	-	CME
14	UpEnergy	Evidence for random number generator for sampling	-	CME
15	UpEnergy	WBT conducting methodology for the cook stoves	-	CME
16	UpEnergy	Agreement copy in between the CME and UpEnergy Uganda Ltd (VPA implementer)	-	CME
17	UpEnergy	CME Manual for the PoA along with Organization Structure	-	CME
18	CIRCODU	Competence of the persons who conducted monitoring	-	CME

19	UpEnergy	Copies of the contracts with stove manufacturers	-	CME
20	UpEnergy	Emission Reduction Purchase Agreement	-	CME
21	UpEnergy	Deviation approval from GS for renewal of crediting period of the PoA 10898 and VPAs 10899 to 10902 (GS Ref. No.: COVID_DEV 216, dated 15/07/2020)	-	CME
22	UpEnergy	Employment records for the PoA	-	CME
23	UpEnergy	HR Policy & Employee Handbook_2021	-	CME
24	UpEnergy	Employment Contract – TEMPLATE 2021	-	CME
B01	UNFCCC	1. Validation and Verification Standard for PoAs, version 02 2. Project Standard for PoAs, version 2 3. Project Cycle Procedure for PoAs, version 02	http://cdm.unfccc.int/	Others
B02	UNFCCC	Applied baseline and monitoring methodology, AMS-II.G, version 05.0	http://cdm.unfccc.int/	Others
B03	UNFCCC	Instructions for filling out the monitoring report form for GS programme of activities, version 1.1		Others
B04	UNFCCC	a. GS10898 – TRF-PoA and KPID Version 2.0, 15/07/2021 and corresponding validation report. b. GS10899 to GS10921 – TRF-CPAs and KPID Version 3.0, 15/07/2021 and corresponding validation report.	-	Others
B05	Web sites	Websites: http://cdm.unfccc.int/ http://www.ipcc-nggip.iges.or.jp/ http://www.pciaonline.org/testing http://circodu.org.ug/	--	Others
B06	UNFCCC	Guidelines: Sampling and surveys for CDM project activities and programmes of activities, Version 04.0	http://cdm.unfccc.int/	Others
B07	UNFCCC	Standard: Sampling and surveys for CDM project activities and programmes of activities, version 09.0	http://cdm.unfccc.int/	Others
B08	UNFCCC	Guideline: Application of materiality in verifications" Version 02.0	http://cdm.unfccc.int/	Others
B09	UNFCCC	CDM registered PoA-DD and CPA-DDs along with Monitoring Reports and Verification Reports of the previous monitoring periods for the PoA 9956	http://cdm.unfccc.int/	Others
B10	GS	a) GS4GG "Principles & Requirements", version 1.2 b) GS4GG "Programme Of Activity Requirements", version 1.2 c) GS4GG "Community Services Activity Requirements", version 1.2 d) GS4GG "GHG Emissions Reduction & Sequestration Product Requirements, version 2.0 e) GS4GG "Safeguarding Principles & Requirements", version 1.2	http://www.goldstandard.org	Others

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

Table 1. CAR from this verification

CAR ID	01	**Section no.**	MR	**Date:** 29/07/2021
Description of CAR				
In section E.4 of the MR under SDG 1 the “Project estimate” and the “Net benefit” for VPA 10919, VPA 10920 and VPA 10921, ICSs distribution number given is 15,000 which does not match with the actual number of stoves distributed as per the database.				
CME response				**Date:** 29/07/2021
The actual number of stoves distributed is revised in Section E.4 of the Monitoring report under SDG-1. The revised Monitoring report is shared with the VVB.				
Documentation provided by CME				
Revised Monitoring report				
VVB assessment				**Date:** 02/08/2021
CME has submitted revised MR with stating the actual numbers of ICS distributed in each of the VPAs. The CAR is closed.				

CAR ID	02	**Section no.**	MR	**Date:** 29/07/2021
Description of CAR				
Title of the VPAs are incorrectly stated in the MR.				
CME response				**Date:** 29/07/2021
Title of the VPAs are corrected in the Monitoring report				
Documentation provided by CME				
Revised Monitoring report				
VVB assessment				**Date:** 02/08/2021
CME has submitted revised MR with correct titles of the VPAs. The CAR is closed.				

CAR ID	03	**Section no.**	MR	**Date:** 29/07/2021
Description of CAR				
The VPA-DDs state the crediting period till 15 years whereas the MR has considered the crediting period for 5 years in section A.4.				
CME response				**Date:** 29/07/2021
The crediting period of VPA-DDs which is 15 years from start of crediting under CDM are clarified by adding another table in Section A.4. The 5-year crediting cycle from CDM start date is retained to demonstrate the nature of approval deviation request for renewal of crediting period under GS4GG. The revised Monitoring report is shared with the VVB.				
Documentation provided by CME				
Revised Monitoring report				
VVB assessment				**Date:** 02/08/2021
The clarification provided by the CME along with revised MR is deemed acceptable. The CAR is closed.				

Table 2. CLs from this verification

CL ID	01	**Section no.**	MR	**Date:** 29/07/2021
Description of CAR				
On the cover page of the submitted Monitoring Report, version 02 dated 20/07/2021, CME has referred to version 4.0 of the PoA-DD whereas the GS TRF PoA submitted is version 2.0. Necessary correction to be made.				
CME response				**Date:** 29/07/2021
The version number of the PoA-DD is corrected in the cover page of the revised Monitoring report				

Documentation provided by CME	
Revised Monitoring report	
VVB assessment	**Date:** 02/08/2021
CME has submitted revised MR with correct version of the PoA-DD. The CL is closed.	

CL ID	02	**Section no.**	MR	**Date:** 29/07/2021
Description of CAR				
Title of section D.1 is repeated twice. Necessary correction to be made in the MR.				
CME response				**Date:** 29/07/2021
Typographic error of repetition of title of Section D.1 is corrected in the revised Monitoring report.				
Documentation provided by CME				
Revised Monitoring report				
VVB assessment				**Date:** 02/08/2021
The correction in the MR is deemed acceptable. The CL is closed.				

CL ID	03	**Section no.**	MR	**Date:** 29/07/2021
Description of CAR				
CME is requested to provide evidence for the SDG 8 contribution as stated in the Monitoring Report.				
CME response				**Date:** 29/07/2021
Evidence for the SDG-8 (Employment records) are shared with the DOE.				
Documentation provided by CME				
Employment records with Employee IDs				
VVB assessment				**Date:** 02/08/2021
CME has provided evidence for SDG 8. The CL is closed.				

CL ID	04	**Section no.**	MR	**Date:** 29/07/2021
Description of CAR				
In section D.2 of the MR, CME needs to provide the value of the SDG 15 monitoring parameter.				
CME response				**Date:** 29/07/2021
SDG-15 parameter values are updated in Section D.2 of the Monitoring report as per revised net benefit calculation.				
Documentation provided by CME				
Revised Monitoring report				
VVB assessment				**Date:** 02/08/2021
In the revised MR CME has provided the value for the SDG 15 monitoring parameter. The CL is closed.				

Appendix 5. Data and parameters fixed ex ante

SDG 13: Climate Change

Parameter	Quantity of woody biomass used in the absence of the project activity in tonnes per household (B_{old})
Data unit:	Ton wood/HH-year
Default values used:	4.97
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

Parameter	Efficiency of the system being replaced (η_{old})
Data unit:	Percentage
Default values used:	10% for VPA 1 to VPA 12 (VPA 10899 to VPA 10910) 11.43% for VPA 13 to VPA 23 (VPA 10911 to 10921)
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

Parameter	Net to gross adjustment factor to account for leakages (L)
Data unit:	Percentage
Default values used:	0.95
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

Parameter	Net calorific value of the non-renewable biomass that is substituted ($NCV_{biomass}$)
Data unit:	TJ/tonne
Default values used:	0.015
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

Parameter	Emission factor for the substitution of non-renewable woody biomass by similar consumers ($EF_{projected\_fossil\_fuel}$)
Data unit:	tCO_2/TJ
Default values used:	81.60
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

Parameter	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass. ($\mathbf{f_{NRB,y}}$)
Data unit:	Percentage
Default values used:	82%
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

Parameter	Efficiency of the system being deployed at the time of VPA inclusion ($\eta_{specified}$)
Data unit:	Percentage
Default values used:	

Stove Type	Thermal Efficiency
EZY	27.10%
SHS	26.00%
AES	25.30%
SHS-GBE	30.00%
SHS-BOLD	37.30%

		SHS-ILF	38.00%
		Lugwana	34.75%
		SpendSmart	36.35%
		Energy Empire	33.00%
		BME	31.00%
		FSL	35.70%
Purpose of data	Baseline emissions calculation		
Source and Verification of the source	The value of this parameter is based on manufacturer specification /7/		

SDG-1: No Poverty:

Parameter	Access to Basic Services (Number of ICS distributed under the baseline) ($BSA_{Baseline}$)
Data unit:	Number
Default values used:	0
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

Parameter	% HH reporting money saving due to reduced fuel consumption in baseline ($HHS_{Baseline}$)
Data unit:	%
Default values used:	0
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

SDG 3: Good Health and Well Being

Parameter	% HH reporting reduction in smoke/PM emissions while cooking on improved stove in baseline ($SPM_{HH,Baseline}$)
Data unit:	%
Default values used:	0
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

SDG 5: Gender Equality

Parameter	% HH reporting time saving due to reduced collected fuel consumption / cooking time in baseline ($HHT_{Baseline}$)
Data unit:	%
Default values used:	0
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

SDG 7: Affordable and Clean Energy

Parameter	Access to affordable and clean energy (% of operating ICS units under Baseline) ($ACS_{Baseline}$)
Data unit:	%
Default values used:	0
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

SDG 8: Decent Work and Economic Growth

Parameter	Access to affordable and clean energy (% of operating ICS units under Baseline) ($QE\ IG_{Baseline}$)
Data unit:	Number
Default values used:	0
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

SDG 12: Decent Work and Economic Growth

SDG 15: Life on Land

Parameter	Average fuel consumption per HH in Baseline ($FC_{Baseline}$)
Data unit:	Number
Default values used:	0
Purpose of data	Baseline emissions calculation
Source and Verification of the source	The value of this parameter is fixed ex-ante /B04/.

Appendix 6. Data and parameters monitored

SDG 13: Climate Change

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	Quantity of woody biomass used in the project activity by traditional stoves (μ_{old})
Measuring frequency/Time Interval:	Annual
Reporting frequency:	Annual
Reported value:	0.631 tonnes wood/year Monitoring was not conducted for this monitoring period. Please refer to section D.2 and D.4 above.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	Value obtained from monitoring survey of samples /5/
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with VPA-DDs.
Company performing the calibration (internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with monitoring survey records /5/ and the ER sheet /4/.
How were the values in the monitoring report verified?	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB

<table>
<tr><td>Data / Parameter:
(as in monitoring plan of VPA-DD):</td><td>Efficiency of the system being deployed as part of the project activity (η_{new})</td></tr>
<tr><td>Measuring frequency/Time Interval:</td><td>Annual</td></tr>
<tr><td>Reporting frequency:</td><td>Annual</td></tr>
<tr><td>Reported value:</td><td>
<table>
<tr><th>Stove model</th><th>Average efficiency</th></tr>
<tr><td>AES</td><td>22.82%</td></tr>
<tr><td>BME</td><td>30.48%</td></tr>
<tr><td>Energy Empire</td><td>31.79%</td></tr>
<tr><td>EZY</td><td>21.24%</td></tr>
<tr><td>FSL</td><td>34.37%</td></tr>
<tr><td>Lugwana</td><td>33.95%</td></tr>
<tr><td>SHS</td><td>22.84%</td></tr>
<tr><td>SHS-BOLD</td><td>35.52%</td></tr>
<tr><td>SHS-GBE</td><td>28.66%</td></tr>
<tr><td>SHS-ILF</td><td>36.10%</td></tr>
<tr><td>SpendSmart</td><td>35.13%</td></tr>
</table>

Weighted average efficiency with and without considering the date of stove deployment was calculated and the lower of the two values was considered for ER calculation. The considered value of the efficiency is 31.83 %.

Monitoring was not conducted for this monitoring period. Please refer to section D.2 and D.4 above.</td></tr>
<tr><td>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</td><td>Yes</td></tr>
<tr><td>Details of monitoring equipment:</td><td>The stove efficiency testing has been determined by WBTs conducted in line with the guidance provided by the CME in the VPA-DDs /B04/ /15/. The monitoring equipment used for conducting the stove efficiencies by WBTs are thermometer, weighing scale, standard mass and moisture meter. All the monitoring equipment were calibrated as per national standard of host country (i.e. Uganda National Bureau of Standards) and hence deemed acceptable /13/.
QA/QC procedures stated in MR comply with VPA-DDs.</td></tr>
<tr><td>Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?</td><td>VPA-DDs do not specify the accuracy of the monitoring equipment (thermometer, mass balance and moisture meter). Verification team confirms that the accuracy of the monitoring equipment used represent good monitoring practice based on sectoral expertise.</td></tr>
<tr><td>Calibration frequency /interval:
Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification</td><td>NA</td></tr>
<tr><td>Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?</td><td>Please see the above comment</td></tr>
<tr><td>Company performing the calibration(internal</td><td>NA</td></tr>
</table>

or external calibration):	
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	The data has been cross-checked with the WBT test documents /12/. For the stove efficiency parameter, WBT have been performed and this has been checked by the verification team with the related spreadsheets. Furthermore, the verification team has cross checked all the raw data input records in the WBT calculation spread sheets including the calculation procedure for the sampled households and found them to be correct. All the raw data forms for the WBT carried out for efficiency parameter were checked by the verification team and thus no sampling of data is required. Correctness of the stove thermal efficiency values were verified by the verification team based on the review of the WBT calculation spread sheet for correctness of calculations in line with WBT protocol, original test records and review of measuring equipment used during WBTs for calibration and accuracy.
How were the values in the monitoring report verified?	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. As the monitoring parameter under consideration is determined by standardized test procedures (WBT), the QA/QC and calibrations are at the test conduction by the measuring team for WBT. Accordingly, the verification team has focused on abilities, qualifications and recognition of involved personnel and institutions of the measuring team involved in the WBT. The WBT has been carried by CIRCODU. The WBT has been carried out by the well-trained personnel and training certificate of the personnel has been provided to the verification team in this respect /10/. The training content /10/ has also been provided to the verification team. The verification team based on remote interviews and review of competency documents /18/ and training records /10/ confirms that the team was qualified to carry out the WBT in line with the protocol.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	Number of appliances deployed (N_y)
Measuring frequency/Time Interval:	Continuous
Reporting frequency:	Yearly

<table>
<tr><td>Reported value:</td><td>
<table>
<tr><th>VPA</th><th>Number of ICS Distributed</th></tr>
<tr><td>GS 10899 (VPA 001)</td><td>11,279</td></tr>
<tr><td>GS 10900 (VPA 002)</td><td>18,000</td></tr>
<tr><td>GS 10901 (VPA 003)</td><td>18,000</td></tr>
<tr><td>GS 10902 (VPA 004)</td><td>18,000</td></tr>
<tr><td>GS 10903 (VPA 005)</td><td>18,000</td></tr>
<tr><td>GS 10904 (VPA 006)</td><td>18,000</td></tr>
<tr><td>GS 10905 (VPA 007)</td><td>18,000</td></tr>
<tr><td>GS 10906 (VPA 008)</td><td>18,000</td></tr>
<tr><td>GS 10907 (VPA 009)</td><td>18,000</td></tr>
<tr><td>GS 10908 (VPA 010)</td><td>18,000</td></tr>
<tr><td>GS 10909 (VPA 011)</td><td>18,000</td></tr>
<tr><td>GS 10910 (VPA 012)</td><td>18,000</td></tr>
<tr><td>GS 10911 (VPA 013)</td><td>15,000</td></tr>
<tr><td>GS 10912 (VPA 014)</td><td>15,000</td></tr>
<tr><td>GS 10913 (VPA 015)</td><td>15,000</td></tr>
<tr><td>GS 10914 (VPA 016)</td><td>15,000</td></tr>
<tr><td>GS 10915 (VPA 017)</td><td>15,000</td></tr>
<tr><td>GS 10916 (VPA 018)</td><td>15,000</td></tr>
<tr><td>GS 10917 (VPA 019)</td><td>15,000</td></tr>
<tr><td>GS 10918 (VPA 020)</td><td>15,000</td></tr>
<tr><td>GS 10919 (VPA 021)</td><td>7,000</td></tr>
<tr><td>GS 10920 (VPA 022)</td><td>7,000</td></tr>
<tr><td>GS 10921 (VPA 023)</td><td>6,839</td></tr>
<tr><td>Total</td><td>350,118</td></tr>
</table>
</td></tr>
<tr><td>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</td><td>Yes</td></tr>
<tr><td>Details of monitoring equipment:</td><td>Sales database</td></tr>
<tr><td>Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?</td><td>An electronic sales database has been maintained for the project activity /6/.</td></tr>
<tr><td>Calibration frequency /interval:
Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification</td><td>NA</td></tr>
<tr><td>Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?</td><td>NA. QA/QC procedures stated in MR comply with VPA-DDs.</td></tr>
<tr><td>Company performing the calibration(internal or external calibration):</td><td>NA</td></tr>
<tr><td>Did calibration confirm proper functioning of monitoring equipment? (Yes / No):</td><td>NA</td></tr>
<tr><td>Is (are) calibration(s) valid for the whole reporting period?</td><td>NA</td></tr>
<tr><td>If applicable, has the reported data been cross-checked with other available data?</td><td>Yes, the value of parameter has been cross-checked with the monitoring database and sample households and the scanned copy records were also</td></tr>
</table>

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

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	Average usage rate of appliance type being deployed (U_y)
Measuring frequency/Time Interval:	Annual
Reporting frequency:	Annual
Reported value:	82.54 % Monitoring was not conducted for this monitoring period. Please refer to section D.2 and D.4 above.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	Value obtained from the monitoring survey of samples /5/
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA.
Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with VPA-DD.
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, reported data in MR has been compared with monitoring survey records /5/ and the ER sheet /4/
How were the values in the monitoring report verified?	The values in the monitoring report were compared against the values in ER sheet
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place. The sampling surveys has been carried out by third party appointed well-trained personnel /10/. The

	training content /10/ has also been provided to the verification team. The verification team based on remote interviews and review of competency documents /18/ and training records /10/ confirms that the team was qualified to carry out the monitoring surveys.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA.

Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
13 Climate Action (mandatory)	Amount of CO_2e emissions reduced by the project	440,618	VERs
1 No Poverty 1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of population living in households with access to basic services Indicator: Number of ICS distributed under the project as an indicator of providing basic service access to households	350,118	Number
1 No Poverty 1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of population living in households with access to basic services Indicator: % users reporting money saving due to reduction in purchased fuel consumption in project	PP has not claimed this SDG during the monitoring period	%
3 Good Health and Well Being 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water	3.9.1 - Mortality rate attributed to household and ambient air pollution	PP has not claimed this SDG during the monitoring period	%

and soil pollution and contamination.	Indicator: % users reporting reduction in smoke/PM after shifting to ICS in project		
5 Gender Equality 5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location Indicator: % users reporting time saving due to reduction in collected fuel consumption / cooking time in project	PP has not claimed this SDG during the monitoring period	%
7 Affordable and Clean Energy 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.2 Proportion of population with primary reliance on clean fuels and technology Indicator: % users reporting an operational ICS in project	82.54	%
8 Decent Work and Economic Growth 8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	8.5.1Average hourly earnings of female and male employees, by occupation, age and persons with disabilities Indicator: Number of male / female numbers of employment created by project	72	Number
12 Responsible Consumption and Production 12.2 By 2030, achieve the sustainable management and efficient use of natural resources	12.2.2 - Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP Indicator: Average % Fuel savings reported by users in the project	VPA 10899 to VPA 10910 - 56.88 VPA 10911 to VPA 10921 – 53.15	%
15 Life on Land 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	15.2.1 Progress towards sustainable forest management Indicator: Woodfuel eq savings reported by user in the project	VPA 10899 to VPA 10910 – 2.83 VPA 10911 to VPA 10921 – 2.64	Tonnes / user / year

Furthermore, during remote interviews it was confirmed that no disputes, inputs and comments have been received via the Continuous Input and Grievance Mechanism during the monitoring period.

APPENDIX 7. Assessment of Safeguarding Principles

Safeguarding Principles	Assessment Questions/ Requirements	How Project will achieve Requirements through design, management or risk mitigation.	Verification team assessment
Principle 1. Human Rights	The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights	The PoA and CME both respect human rights and are not complicit in violence or human rights abuses.	The PoA involves dissemination of improved cookstove which users are free to choose. This project is a voluntary action by the project developer and no risk and issues to the internationally proclaimed human rights are expected from this project. The PoA and CME both respect human rights and are not complicit in violence or human rights abuses. No mitigation measure required. The validation team confirms that PoA fulfils the GS requirement outlined in the para 3.1.1 of the GS4GG safeguarding principles requirements version 1.2 /B10/.
	The Project shall not discriminate with regards to participation and inclusion	The PoA does not discriminate with regards to participation and inclusion	The PoA involves dissemination of improved cookstove which users are free to choose. There is no discrimination against any person or group regarding the possibility to buy a stove. No mitigation measure required. The validation team confirms that PoA fulfils the GS requirement outlined in the para 3.1.2 of the GS4GG safeguarding principles requirements version 1.2 /B10/.
Principle 2. Gender Equality	The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women (a) Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including sexual exploitation or human trafficking.	Not relevant	This is not relevant for the project activity.
	(b) Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.	Not relevant	This is not relevant for the project activity.
	(c) Restriction of women's rights or access to resources (natural or	Not relevant	This is not relevant for the project activity.

	economic).		
	(d) Recognise women's ownership rights regardless of marital status – adopt project measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources.	Not relevant	This is not relevant for the project activity.
	Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work: (a) Where appropriate for the implementation of a PoA/VPA, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities.	Not relevant	This is not relevant for the project activity.
	(b) Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status.	Not relevant	This is not relevant for the project activity.
	(c) Ensure that these conditions do not limit the access of women or men, as the case may be, to PoA/VPA participation and benefits.	Not relevant	This is not relevant for the project activity.
	The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks	Not relevant	This is not relevant for the project activity.
	(where required) Summary of opinions and recommendations of an Expert Stakeholder(s)	Not relevant	This is not relevant for the project activity.
Principle 3. Community Health, Safety and Working Conditions	The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community	The PoA reduces exposure to indoor air pollutants and smoke levels, further reducing incidence of respiratory illness compared to cooking on	The improved cookstove will help to improve the air quality by reducing air pollution and thus avoids community exposure to increased health risks. The validation team confirms that PoA fulfils the GS requirement outlined in the para 3.3.1 of the GS4GG

		traditional biomass stoves using solid biomass fuel.	safeguarding principles requirements version 1.2 /B01/.
Principle 4.1 Sites of Cultural and Historical Heritage	Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	Not relevant	This is not relevant for the project activity.
Principle 4.2 Forced Eviction and Displacement	Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	Not relevant	This is not relevant for the project activity.
Principle 4.3 Land Tenure and Other Rights	Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership?	Not relevant	This is not relevant for the project activity.
Principle 4.4 Indigenous People	Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	Since this is a cookstove distribution project, there is no risk to land/territory claimed by indigenous peoples. Cookstoves will be distributed to all willing customers within the project boundary.	This is not relevant for the project activity.
Principle 5. Corruption	The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	The CME does not promotes / or is complicit in direct or indirect corruption.	The PoA does not in any way promote or complicity corruption. The validation team confirms that PoA fulfils the GS requirement outlined in the para 3.5.1 of the GS4GG safeguarding principles requirements version 1.2 /B10/.
Principle 6.1 Labour Rights	The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions	The PoA does not involve any forced labour and the PP ensures that all employment is in compliance with local labour regulations and laws.	The PoA does not involve any kind of forced labour or compulsory labour. The validation team confirms that PoA fulfils the GS certification requirement outlined in the para 3.6.1 of the GS4GG safeguarding principles requirements version 1.2 /B10/.
	Workers shall be able to establish and join labour organisations	The CME puts no constraints / limitation on employees to form a union.	The CME does not limit any of the employees to form unions or join labour organizations. The validation team confirms that PoA fulfils the GS certification requirement outlined in the para 3.6.1 of the GS4GG safeguarding

			principles requirements version 1.2 /B10/.
	1. Working agreements with all individual workers shall be documented and implemented and include: a. Working hours (must not exceed 48 hours per week on a regular basis), AND b. Duties and tasks, AND c. Remuneration (must include provision for payment of overtime), AND d. Modalities on health insurance, AND e. Modalities on termination of the contract with provision for voluntary resignation by employee, AND f. Provision for annual leave of not less than 10 days per year, not including sick and casual leave.	The CME's policies and employment contracts are compliant with the requirement	The PoA does not involve any kind of forced labour or compulsory labour. The CME has submitted HR Policy & Employee Handbook /23/ and also Employee in this respect. The validation team confirms that PoA fulfils the GS requirement outlined in the para 3.6.1 (b) of the GS4GG safeguarding principles requirements version 1.2 /B10/.
	No child labour is allowed (Exceptions for children working on their families' property requires an Expert Stakeholder opinion)	The CME does not promote / or is complicit in child labour	The PoA does not involve any kind of child labour and the CME shall take adequate steps to ensure the age verification process is thoroughly carried out while recruitment. The validation team confirms that PoA fulfils the GS requirement outlined in the para 3.6.2 of the GS4GG safeguarding principles requirements version 1.2 /B01/.
	The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures	Not relevant	This is not relevant for the project activity.
Principle 6.2 Negative Economic Consequences	Does the project cause negative economic consequences during and after project implementation?	No negative economic consequences are deemed applicable	No negative economic consequences are deemed applicable. This is not relevant for the project activity.

Principle 7.1 Emissions	Will the Project increase greenhouse gas emissions over the Baseline Scenario?	The PoA reduces GHG emissions relative to baseline scenario	The project involves dissemination of improved cookstove which will reduce GHG emissions compared to the baseline scenario. This is not relevant for the project activity.
Principle 7.2 Energy Supply	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	The project will reduce fuel resource consumption instead	The improved cookstove does not use energy from local grid or power supply. The cook stove requires fuel wood as an energy source. The project will reduce fuel resource consumption. The validation team confirms that PoA fulfils the GS requirement outlined in the GS4GG safeguarding principles requirements version 1.2 /B01/
Principle 8.1 Impact on Natural Water Patterns/Flows	Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	Not applicable	This is not relevant for the project activity.
Principle 8.2 Erosion and/or Water Body Instability	Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion?	The PoA shall result in reduction in demand of biomass fuel in the region putting less pressure of forests for deforestation and will hence indirectly avoid erosion associated with tree cutting/ felling.	The project involves dissemination of improved cookstove and does not in any way cause additional erosion and/or water body instability or disrupt the natural pattern of erosion. The PoA shall result in reduction in demand of biomass fuel in the region putting less pressure of forests for deforestation and will hence indirectly avoid erosion associated with tree cutting/ felling. The validation team confirms that PoA fulfils the GS requirement outlined in the GS4GG safeguarding principles requirements version 1.2 /B01/.
Principle 9.1 Landscape Modification and Soil	Does the Project involve the use of land and soil for production of crops or other products?	Not applicable	This is not relevant for the project activity.
Principle 9.2 Vulnerability to Natural Disaster	Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	Not applicable	This is not relevant for the project activity.
Principle 9.3	Could the Project be negatively	Not applicable	This is not relevant for the project activity.

Genetic Resources	impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?		
Principle 9.4 Release of pollutants	Could the Project potentially result in the release of pollutants to the environment?	Not applicable	This is not relevant for the project activity.
Principle 9.5 Hazardous and Non-hazardous Waste	Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	Not applicable	This is not relevant for the project activity.
Principle 9.6 Pesticides & Fertilisers	Will the Project involve the application of pesticides and/or fertilisers?	Not applicable	Not applicable
Principle 9.7 Harvesting of Forests	Will the Project involve the harvesting of forests?	The PoA does not involve harvesting of forests. The PoA shall result in reduction in demand of biomass fuel in the region putting less pressure of forests for deforestation and will hence indirectly avoid erosion associated with tree cutting/ felling.	The PoA involves in the reduction of fuel wood consumption therefore it will positively support the forest resources. The validation team confirms that PoA fulfils the GS requirement outlined in the GS4GG safeguarding principles requirements version 1.2 /B01/.
Principle 9.8 Food	1. Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	Not applicable	This is not relevant for the project activity.
Principle 9.9 Animal husbandry	Will the Project involve animal husbandry?	Not applicable	This is not relevant for the project activity.
Principle 9.10 High Conservation	Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical	Not applicable	This is not relevant for the project activity.

Value Areas and Critical Habitats	habitats, landscapes, key biodiversity areas or sites identified?		
Principle 9.11 Endangered Species	Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? AND/OR Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	Not applicable	This is not relevant for the project activity.

APPENDIX 8: Gold Standard Verification Protocol

CCIPL's Checklist question	Ref.	MoV[3]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1. Sustainability Monitoring					
1.1 Have all non-neutral indicators been monitored as per the sustainability monitoring plan?	/1/	DR,	Yes, all the non-neutral indicators have been monitored as per the sustainability monitoring plan.	OK	OK
1.2 Have the methods to monitor data changed? And are they suitable to the project scale and type?	/1/	DR	Methods to monitor data have not changed as compared with the monitoring plan in the registered passport and monitoring plan.	OK	OK
1.3 Has the way of monitoring been followed? With the inclusion of dates and parameters?	/1/	DR	The sustainability monitoring plan has been followed as per described in the Passport.	OK	OK

[3] MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search.

CCIPL's Checklist question	Ref.	MoV[3]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1.4 Have mitigation measures been put in place to prevent the risk of the violation of the safe guarding principle of "Do No Harm" assessment or to neutralise a Sustainable Development Indicator that is being monitored?	/1/	DR	The mitigation measures have been put in place that has been put in records as a proof of the same. Several supporting documents as listed under Appendix 3 have been provided. Also, the remote interview of the households and interviews of the trained personals of PP were performed during on remote interview.	OK	OK
1.5 Has all the data in the Sustainability development matrix been verified and cross checked against available sources of project data? Has it been described how sustainable development would be affected if a variance occurred?	/1/	DR and remote interview	Yes, all data in the sustainability development matrix have been verified and cross checked from the supporting documents and during remote audit.	OK	OK
2. Other					
2.1 Are there any issues from the previous validation/verification? (ie FARs, requests / approvals for RMP)	/1/ /B03/	DR	No	OK	OK
2.2 Has the project ever received any requests for reviews or incompletes from the UNFCCC or GS Secretariat?	/1/ /B03/	DR	No there are no request for reviews or incomplete for the project.	OK	OK
2.3 The evaluation of the status of mitigation and compensation measures has been verified.	/1/ /B03/	DR	Yes, the status of mitigation and compensation measures has been verified.	OK	OK