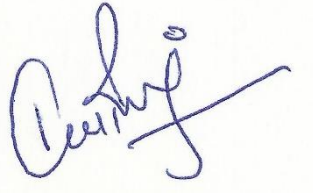


**Verification report form for
GS4GG Programme of Activity
(Gold Standard for the Global Goals)**

BASIC INFORMATION

Title of the GS4GG Project	GS2434 MicroEnergy Credits – Mongolia - Microfinance for Clean Energy Product Lines VER Project – VPA No.001: XacBank LLC- VPA 1
GS ID of Project	GS2435
Version number of the verification and certification report	1.1
Completion date of the verification and certification report	01/05/2023
Monitoring period number and duration of this monitoring period	1 st monitoring period of 2 nd Crediting Period Duration: 06/04/2020 to 05/04/2022 (inclusive of both days)
Version number of the monitoring report to which this report applies	2.4 Dated: 25/04/2023
Project Representative(s)	MicroEnergy Credits (MEC)
Host Party	Mongolia
Applied methodologies and standardized baselines	Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 4.0
Activity requirements applied	<input checked="" type="checkbox"/> Community Services Activities <input type="checkbox"/> Renewable Energy Activities <input type="checkbox"/> Land Use and Forestry Activities/Risks & Capacities <input type="checkbox"/> N/A
Mandatory sectoral scopes	Sectoral Scope 3: Energy Demand
Activity Requirements applied	<input checked="" type="checkbox"/> Community Services Activities <input type="checkbox"/> Renewable Energy Activities <input type="checkbox"/> Land Use and Forestry Activities/Risks & Capacities <input type="checkbox"/> N/A

Sustainable Development Goals Targeted	SDG Impact	Amounts Achieved	Units/Products
SDG:13 Climate Change	GHG emission reductions	127,911	tCO ₂ e/year
SDG:7 Affordable and Clean Energy	The number of active CEPs disseminated by the project, during year y	15,325 (2021) 14,697 (2022)	Numbers
SDG:8 Decent Work and Economic Growth	Number of jobs created by the project activity	4	Number of jobs
Name of the Gold Standard approved auditor (VVB)	Earthood Services Private Limited		
Name, position and signature of the approver of the verification and certification report	 Dr. Kaviraj Singh Managing Director		

SECTION A. Executive summary

The GS PoA (GS 2434) "MicroEnergy Credits – Mongolia -Microfinance for Clean Energy Product Lines VER Project" aims at replacement of fossil fuel consumption and the resultant GHG emission with a cleaner and sustainable technology which will lead to reduced GHG emissions. CME achieves this through dissemination of efficient heating stoves in Mongolia. In contrast to baseline stoves such as traditional stoves used for space heating, the energy efficiency heating stoves distributed under the PoA combust the fuel far more efficiently resulting in reduction of amount of fuel required for heating generation and thereby emitting lesser GHG and particulate matter. Thus, replacing the baseline scenario with the project activity will lead to reduction in GHG emissions and thereby aid in mitigation of climate change.

The VPA (GS 2435) "GS2434 MicroEnergy Credits – Mongolia - Microfinance for Clean Energy Product Lines VER Project – VPA No.001: XacBank LLC- VPA 1" aims at dissemination of improved stoves in geographical boundary of the PoA Mongolia/02/ and is being implemented and coordinated by MicroEnergy Credits (MEC). The VPA aims at GHG emission reductions through displacement of fossil fuel use with efficient stoves to meet the thermal and electric demands of facility/household. The households of Mongolia traditionally use inefficient stoves which consumes large amounts of coal briquettes for fulfilling their energy demands. The baseline scenario under the VPA is the replacement of traditional heating stoves with efficient stoves thereby reducing the amount of fossil fuel used for heating purposes in the baseline. There have been 19,422 project stove distribution in Mongolia under the registered VPA, with the first clean energy product being distributed on 25/05/2011.

The Coordinating/managing entity of the PoA is MicroEnergy Credits LLC and the VPA implementer is XacBank LLC.

The monitoring period covered under this verification is 06/04/2020 to 05/04/2022 (inclusive of both the dates) in line with approved deviation from Gold Standard (dated 01/06/2022) which states "GS VERs can be claimed from 06/04/2020 or three years (retroactive) from the date of remote/physical site visit by a VVB, whichever occurs later". The total GHG emission reductions for the current monitoring period is 127,911 tCO₂e. Further, SDG benefits achieved from the programme during the current monitoring period are listed in the table below in detail:

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/Products
13 Climate Change	GHG emission reductions	127,911	tCO ₂ e/year
7 Affordable and Clean Energy	The number of active CEPs disseminated by the project, during year y	15,325 (2021) 14,697 (2022)	stoves in use
8 Decent Work and Economic Growth	Number of jobs created by the project activity	4	Number of jobs created

Scope of verification

The verification is an independent and objective review for determination of the monitored reductions in GHG emissions by the VVB. The verification includes the implementation and operation of the PoA as set out in the registered PoA-DD/01/ & real case VPA-DD/02/ for the VPA 01 in the monitoring period.

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

- (i) The approved methodology "Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC)", Version 4.0 /07/
- (ii) The PoA-DD/01/ & VPA-DD/02/ and registered monitoring plan
- (iii) UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accord
- (iv) GS4GG Principles and Requirements, version 1.2/11/
- (v) Validation and Verification Body requirements, GHG Product requirements and references relevant to the project activity's reported SDG outcomes.

The verification has considered both the quantitative and qualitative aspects on stated/reported emission reductions. The monitoring report (all versions) and corresponding supporting documentation was assessed in accordance with the rules defined by UNFCCC and GS4GG, as appropriate to the PoA. The verification is not meant to provide any consulting or recommendations to the CME/others. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

Verification Process

The verification process is conducted as per internal GS4GG Requirements, which includes the following steps;

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

Verification Conclusion

Based on the outcome of the verification process of the GS PoA "MicroEnergy Credits – Mongolia -Microfinance for Clean Energy Product Lines VER Project" and its corresponding real case VPA, VPA 01 "MicroEnergy Credits – Mongolia - Microfinance for Clean Energy Product Lines VER Project – VPA No.001: XacBank LLC - VPA 1", for the monitoring period 06/04/2020 to 05/04/2022 (inclusive of both the dates), we confirm that the implementation of referenced registered PoA and its real case VPA (VPA 01) is complying with applicable GS4GG rules and regulations as stated in the Monitoring Report (final) Version 2.4, dated 25/04/2023/05/. The

GHG emission reductions were calculated in line with the approved baseline and monitoring methodology "Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumptions (TPDDTEC)", Version 4.0"/07/ and the monitoring plan contained in the registered PoA-DD/01/ and VPA-DD/02/.

Earthood Services Private Limited (hereafter referred as "Earthood") is able to certify that the emission reductions from the registered PoA (GS 2434) "MicroEnergy Credits – Mongolia - Microfinance for Clean Energy Product Lines VER Project" and its real case VPA "GS 2435 – MicroEnergy Credits – Mongolia - Microfinance for Clean Energy Product Lines VER Project – VPA No.001: XacBank LLC - VPA 1" during the crediting period 06/04/2020 to 05/04/2022 (inclusive of both the dates) is 127,911 tCO₂e. Therefore, this is being submitted for request for issuance, as per GS4GG UNFCCC procedures.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader	IR	Kalita	Jahnabi	Central office	Y	N	N	Y
2.	TA Expert (TA 3.1) (GS approved auditor)	IR	Guleria	Shifali	Central office	Y	Y	Y	Y
3.	Methodology Expert	IR	Guleria	Shifali	Central office	Y	Y	Y	Y
4.	Local Expert	EI	Nergui	Munkhzul	Central office	Y	Y	Y	Y

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g., name of central or other office of VVB or outsourced entity)
1.	Technical reviewer	IR	Mahala	Deepika	Central Office
2.	Technical Expert (TA 3.1) to TR	IR	Mahala	Deepika	Central Office
3.	Approver	IR	Singh	Kaviraj	Central office

SECTION C. Application of materiality in conducting the verification

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to errors, omissions, or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Erroneous transfer of information from documented records (sales receipt, carbon transfer form etc.) to credit tracker platform	Low	POs contracted by CME enter the details in credit tracker platform at the time of installation. POs also conduct an internal check to verify the accuracy of data entry.	On a sampling basis, the records are checked with the information from the credit tracker platform and substantiated by questions asked during the remote surveys of end-users. The familiarity of PO representatives with the tracker platform is also checked.
2.	Erroneous consideration of technical specifications of efficient stoves	Low	The technical specifications are provided by the manufacturer.	Technical specifications of each stove model are checked against the document issued by the manufacturer.
3.	Observational error by monitoring survey staff of CME/VPA implementer while recording the responses of users in relation to survey parameters	Low	Other than monitoring surveys, the stove usage status-check surveys are also conducted regularly for distributed efficient stoves. Therefore, the risk of error is low. However, if there are discrepancies, they are to be dealt with as per the acceptance sampling approach.	If the aggregated materiality threshold stays within the prescribed materiality threshold, no additional effort is required. However, if the aggregated materiality threshold is above the prescribed threshold, additional samples are to be inspected. If additional sampling is not able to reduce the materiality threshold to a reasonable level of assurance, the monitoring result by the CME for that parameter is to be discarded.
4.	Calculation and referencing errors in ER sheet	Low	The ER calculations are cross-checked by using two different methods of calculation and comparing the results; therefore, occurrence of error is less likely. However, referencing errors within the ER sheet may occur.	All calculations and referencing will be checked by verification team with respect to applicable requirements under various documents viz., methodology, PoA DD, VPA DD etc.

C.2. Consideration of materiality in conducting the verification

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

SECTION D. Means of verification

D.1. Desk/document review

The verification is performed primarily as a desk review of the documents submitted at various stages of assessments. The review is performed by the assessment team using dedicated protocols (checklists). The assessment team cross checks the information provided in the documents (MR) and information from sources other than those used, if available, and also conducts independent background investigations. Earthood conducted a desk review as under:

1. A review of the data and information presented to verify their completeness.
2. A review of the monitoring plan (as described in real case VPA-DD), the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures.
3. A review of calculations and assumptions made in determining the GHG data and emission reductions.
4. An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions

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

Para 5.1.28 of the core document Principles & requirements version 1.2/11/, states that "Unless otherwise stated (for example in an applied Methodology or Product Requirements), the same VVB may undertake Validation and Verification of a given Project". Therefore, same VVB but with different assessment team members has conducted the renewal of crediting period and Verification of the VPA01

D.2. On-site inspection

Duration of on-site inspection: 19/09/2022 – 20/09/2022					
No.	Activity performed on-site	Site location	Date		Team member
1.	Opening Meeting	Ulaanbaatar, Mongolia	19/09/2022 20/09/2022	-	Shifali Guleria and Munkhzul Nergui
2.	Implementation and operation of project activity (project boundary, project technology) as per registered VPA DD	Ulaanbaatar, Mongolia	19/09/2022 20/09/2022	-	Shifali Guleria and Munkhzul Nergui
3.	Management and monitoring procedures, data collection and archiving systems followed at project site	Ulaanbaatar, Mongolia	19/09/2022 20/09/2022	-	Shifali Guleria and Munkhzul Nergui
4.	Interview of CME representatives, monitoring personnel and end-users (as per as VVB sampling plan)	Ulaanbaatar, Mongolia	19/09/2022 20/09/2022	-	Shifali Guleria and Munkhzul Nergui
5.	Management and operational system: Database management, allocation of responsibilities, qualification and training, ICS distribution, Monitoring survey, internal audit and management review	Ulaanbaatar, Mongolia	19/09/2022 20/09/2022	-	Shifali Guleria and Munkhzul Nergui
6.	Verification checklist: acceptability (or otherwise) of CME's monitoring survey records, compliance of monitoring procedures with registered PoA-DD, VPA DD and applied monitoring methodology.	Ulaanbaatar, Mongolia	19/09/2022 20/09/2022	-	Shifali Guleria and Munkhzul Nergui
7.	Review of monitored data and relevant document in accordance with registered monitoring plan and applied monitoring methodology.	Ulaanbaatar, Mongolia	19/09/2022 20/09/2022	-	Shifali Guleria and Munkhzul Nergui
8.	Review of ER calculations in accordance with applied methodology and relevant tools.	Ulaanbaatar, Mongolia	19/09/2022 20/09/2022	-	Shifali Guleria and Munkhzul Nergui
9.	Closing Meeting	Ulaanbaatar, Mongolia	19/09/2022 20/09/2022	-	Shifali Guleria and Munkhzul Nergui

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			

1.	Patgiri	Pritu Kunjan	MicroEnergy Credits (MEC)	19/09/2022 – 20/09/2022	ER calculations, Monitoring Report, monitoring procedures	Shifali Guleria and Munkhzul Nergui
2.	Bansal	Abhishek	MicroEnergy Credits (MEC)	19/09/2022 – 20/09/2022	Project implementation, PoA Management system, stove distribution mechanism	Shifali Guleria and Munkhzul Nergui
3.	Howell	Daniel	XacBank LLC	19/09/2022 – 20/09/2022	Monitoring Surveys, Sampling methodology	Shifali Guleria and Munkhzul Nergui
4.	Banyzmunkh	Enkhchuluun	XacBank LLC	19/09/2022 – 20/09/2022	Database management, Sales records, Training procedures	Shifali Guleria and Munkhzul Nergui
5.	Batbold	Dagva	End-user	19/09/2022 – 20/09/2022	VVB Field Survey	Shifali Guleria and Munkhzul Nergui
6.	Zhargal	Bat-ochir	End-user	19/09/2022 – 20/09/2022	VVB Field Survey	Shifali Guleria and Munkhzul Nergui
7.	Badamkhand	Ganbat	End-user	19/09/2022 – 20/09/2022	VVB Field Survey	Shifali Guleria and Munkhzul Nergui
8.	Altansuvd	Baasan	End-user	19/09/2022 – 20/09/2022	VVB Field Survey	Shifali Guleria and Munkhzul Nergui
9.	Tsedev	Dyisen	End-user	19/09/2022 – 20/09/2022	VVB Field Survey	Shifali Guleria and Munkhzul Nergui
10	Tsend-Aiuush	Dolgor	End-user	19/09/2022 – 20/09/2022	VVB Field Survey	Shifali Guleria and Munkhzul Nergui

11	Altanchimeg	Zhamba	End-user	19/09/2022 – 20/09/2022	VVB Survey	Field	Shifali Guleria and Munkhzul Nergui
12	Davaasyren	Badamzhan	End-user	19/09/2022 – 20/09/2022	VVB Survey	Field	Shifali Guleria and Munkhzul Nergui

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

Following questions are asked by the end-users for the verification of samples:

No.	Questions asked by verification team member
1.	Name of the end-user
2.	Location/ Address (Village name, Pincode)
3.	Branch, District, State
4.	What is the Product Model? Can you show us the product.
5.	What is the Installation Date?
6.	What is the Unique ID of CEP?
7.	Total Quantity of each product type you have?
8.	Is your product in use/ operational?
9.	Is the baseline stove still in use?
10.	Quantity of fossil fuel use in baseline stove?
11.	Is there any smoke reduction after using the project stove?
12.	Any other stove other than the project stove?
13.	Is your sampled HH also surveyed by PP?

All the end-users reported that the product is working satisfactorily, and they feel that there has been an improvement in the indoor air quality in case of efficient stoves. All the end users also reported that they are aware of the grievance mechanism. While no adverse or negative responses were received regards the usage or convenience of use of project stove.

D.4. Sampling approach

VVB's Sampling Approach

In order to meet the requirements of Standard for Sampling and surveys for CDM project activities and programmes of activities /15/, the verification team applied acceptance sampling in the verification (in accordance with para 28). The verification team selected random samples of CME's sampled records, checked the acceptability (or otherwise) of the data for each such record with CME's sample records, and then based on the number of records where there is an agreement, determined if the CME's sample records meet the requirements.

The verification team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgment and guidance in the Standard 'Sampling and surveys for CDM project activities and programme of activities' /15/:

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

Considering the above input values, a sample size of 8 was required as per Table (Sample size and acceptance number based on AQL, UQL, and producer and consumer risks) in the referred Standard /15/. Accordingly, the acceptance number (c) thus determined for the sample size is 0. A sample size of 8 meets the criteria. The samples to be surveyed by assessment team were randomly selected from the list of monitored samples using the random sample generator on Microsoft excel.

VVB has picked 8 samples from the sampling frames with 3 households extra as backup for the purpose of onsite inspection to check the acceptability of CME’s sampling results or otherwise. The verification team observed that the sampling survey results of the CME for all the stoves checked were found to be consistent with VVB’s survey results. The sampling method used is in line with Standard: Sampling and surveys for CDM project activities and programme of activities /15/ and Guideline: Sampling and surveys for CDM project activities and programme of activities /16/. In all, the verification team conducted onsite surveys for 8 households.

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

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
General			
Compliance of the monitoring report with the monitoring report form	-	-	-
Remaining forward action requests from previous verification	-	-	-
Specific-case VPA(s) considered for verification and covered in this report	-	-	-
Programme of activities			
Compliance of the programme implementation with the registered PoA-DD	CL#01	-	-
Implementation and operation of the management system	-	-	-
Post-registration changes			
• Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	-	-	-
• Corrections	-	-	-
• Inclusion of a monitoring plan in a registered PoA-DD (including its generic VPA-DD(s))	-	-	-
• Permanent changes to the monitoring plan as described in the registered PoA-DD, applied methodology, or applied standardized baseline	-	-	-

<ul style="list-style-type: none"> Changes to the programme design of the registered PoA-DD (including corresponding changes to project design of the generic VPA-DD(s)) and updates to the eligibility criteria for inclusion of specific-case VPAs in the PoA 	-	-	-
<ul style="list-style-type: none"> Types of changes specific to afforestation and reforestation activities 	-	-	-
Voluntary project activities			
Compliance of the VPA implementation with the included VPA design document	-	-	-
Post-registration changes	-	-	-
<ul style="list-style-type: none"> Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline 	-	-	-
<ul style="list-style-type: none"> Corrections 	-	-	-
<ul style="list-style-type: none"> Changes to the start date of the crediting period 	-	-	-
<ul style="list-style-type: none"> Inclusion of a monitoring plan to an included VPA-DD 	-	-	-
<ul style="list-style-type: none"> Permanent changes to the monitoring plan as described in the included VPA-DD, applied methodology, or applied standardized baseline 	-	-	-
<ul style="list-style-type: none"> Changes to the programme design of the included VPA-DD 	-	-	-
<ul style="list-style-type: none"> Types of changes specific to afforestation and reforestation component project activities 	-	-	-
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	-	-	-
Compliance of monitoring activities with the registered monitoring plan	-	-	-
<ul style="list-style-type: none"> Data and parameters fixed ex ante or at renewal of crediting period 	-	-	-
<ul style="list-style-type: none"> Data and parameters monitored 	-	CAR#01 CAR#02 CAR#03 CAR#04	-
<ul style="list-style-type: none"> Implementation of sampling plan 	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	-	CAR#05	-
<ul style="list-style-type: none"> Calculation of baseline GHG emissions or baseline net GHG removals by sinks 	-	-	-
<ul style="list-style-type: none"> Calculation of project GHG emissions or actual net GHG removals by sinks 	-	-	-
<ul style="list-style-type: none"> Calculation of leakage GHG emissions 	-	-	-
<ul style="list-style-type: none"> Summary of calculation of GHG emission reductions or net GHG removals by sinks 	-	-	-

• Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included specific-case VPA	-	-	-
• Remarks on difference from estimated value in registered VPA-DD	-	-	-
Assessment of reported sustainable development co-benefits	CL#02	-	-
Local stakeholder consultation	-	-	-
Others	-	-	-
Total	02	05	00

SECTION E. Verification findings
E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	VVB checked from the Gold Standard website that the prescribed form has been used for preparing the Monitoring Report. The CME used the Gold Standards for Global Goals latest MR template version 1.1/04/ available on the GS webpage and all the details were filled as per the MR template filling guidelines/04/.
Findings	None
Conclusion	The verification team confirms the compliance of the monitoring report with the latest version of the GS monitoring report template, version 1.1/4/ and the instructions therein for filling out the form.

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

This is the first verification of the real case VPA 01 under the 2nd Crediting Period. The renewal of crediting period and verification of the PoA (GS 2435) and the real case VPA is submitted simultaneously for GS design certification renewal and performance review. Any FAR's raised will be reflected in the next verification.

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

Title and GS reference number of the VPA included in the PoA as of at the end of this monitoring period	VPA Cycle	Is the VPA considered for this verification? (yes/no)	Version of the VPA-DD/ PoA-DD
GS2434 MicroEnergy Credits – Mongolia - Microfinance for Clean Energy Product Lines VER Project – VPA No.001: XacBank LLC- VPA 1	Real Case	Yes	Version 2.4 /Version 3.0

E.4. Programme of activities
E.4.1. Compliance of the programme implementation with the registered programme design document

Means of verification	The PoA involves the promotion, distribution, and sale of efficient heating stoves in Mongolia. CME has implemented the VPA through coordination with the partner organizations (POs) and further with local/channel
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sellers/distributors. The overall responsibility of implementation and operation is with CME (MEC), which was evident from the interviews conducted with CME. This is consistent with PoA DD /01/. The current verification considers the real case VPA(GS2435) "GS2434 MicroEnergy Credits – Mongolia - Microfinance for Clean Energy Product Lines VER Project – VPA No.001: XacBank LLC-VPA 1".

The implementation of the VPA, as referenced above, is within the geographical boundary of the PoA/01/, which constitutes the physical boundary as well.

The type of CEP (Clean Energy Product) models deployed under the VPA is verified by the following:

CEP Deployed	CEP model	PO/Implementer
Efficient heating stove	Silver Stove Mini (model 131) Silver Stove Turbo (model 26) Royal Stove Dul (Royal Single) Royal Stove Golomt (Royal Double)	XacBank LLC

The Efficient stove model implemented under the VPA are Silver Stove Mini (model 131), Silver Stove Turbo (model 26), Royal Stove Dul (Royal Single) and Royal Stove Golomt (Royal Double). The Efficient heating device reduces fuel consumption through the use of insulated chamber which enables retention of heat for a longer period and at a higher temperature than a traditional stove without any requirement of fuel processing or change in heating pattern thus solving the health, environment and fuel collection effort required for operating traditional stoves.

Technical specification of each type of CEP models are verified with the details provided by respective CEP suppliers /17/ and found to be consistently reported in the monitoring report/5/.

The numbers of CEPs deployed under the VPA have been confirmed by the monitoring database i.e., Credit Tracker Platform /18/. The district-wise split of distributions under applied methodology/7/ are provided below:

District	Energy efficient heating stoves
Ger Bayangol	24
Ger Songinokhairkhan	1919
Ger Other	9643
House Bayangol	5
House Songinokhairkhan	775
House Others	7056
Total	19,422

The information in table above was reviewed and confirmed against project database/19/ and Credit tracker platform/18/ maintained by the CME.

The verification team was able to confirm that the quantity, specification, and target group of the CEPs is consistent with the PoA DD /1/ and VPA DD/2/. Further, based on the review of Credit Tracker Platform /18/,

physical observations from on-site visit conducted during current monitoring period:

- The VPA is implemented within the boundary of the PoA as described in the PoA-DD/1/.
- The CME is same as that mentioned in the PoA-DD/1/.
- The implementation and operation of the project activity has been conducted in accordance with the description contained in the PoA-DD/1/ and VPA-DD/2/.
- All physical features of the VPA proposed in the included VPA-DD/2/ are in place.
- The VPA implementer has operated the VPAs as per the included VPA-DD/2/.

The verification team has conducted surveys via on-site visits with 8 households. It was observed that each CEP was assigned a unique household identification number. The unique identification number on each CEP, personal information of CEP owners and commissioning date of CEP was cross checked with the MIS system of POs and further checked with Credit Tracker Platform/18/ available with the CME. The operation of the CEPs was confirmed through onsite interviews of owners/representatives (of CEPs). The households were asked various questions to confirm identity of the end user, operational status of the CEPs, presence, and usage of baseline technologies, among others.

The emission reductions being claimed during this monitoring period are lesser than the estimated emission reductions in the VPA-DD/2/, as given in the table below for comparable estimated CERs in the VPA-DD/2/ for the corresponding period:

VPA title	Estimated ERs (tCO ₂)	Actual ERs (tCO ₂)
GS2434 MICROENERGY CREDITS - MONGOLIA - MICROFINANCE FOR CLEAN ENERGY PRODUCT LINES VER PROJECT - VPA NO. 001: XACBANK LLC-VPA 1	196,972	127,911

The number of units have been verified from the distribution record and the calculation of aggregated capacity under the VPA is clearly depicted in the ER sheet/06/ provided by the CME. The small-scale threshold limit of 180 GWh/year has been breached by VPA 01. Hence, VPA 01 is considered as large scale, which is found to be appropriate as per para 3.1.2 (c) of CSA requirements v1.2/13/ and para 9.1.2 (b) of GHG emission reduction and sequestration requirements v2.1/14/. The calculations provided in ER sheet/06/ also confirmed that each stove distributed under the VPA do not breach the threshold of 600 MWh of thermal energy savings per year in

	<p>order demonstrate compliance with positive list of technology requirements for the VPA to be additional.</p> <p>The verification team considers the programme description as contained in the PoA-DD/1/ is complete and accurate. The PoA-DD/1/ complies with the applied methodology/7/. The monitoring report was compared and verified against the description provided in the PoA-DD/1/ and found to be correct.</p> <p>Grievance Mechanism</p> <p>The grievance mechanism involves recording the complaints from the beneficiaries by the field staff to the household on a regular basis in a logbook/20/ which is maintained at the registered office. During the current monitoring period, no grievances was received which was verified upon checking the logbook/20/.</p>																
Findings	CL#01 was raised and resolved.																
Conclusion	<p>The verification team can confirm that all physical features (technology, project equipment, and monitoring and metering equipment) of the VPA were in place and that the CME operated the project activity in accordance with the registered VPA-DD/02/ and VPA-Inclusion Report/3/ during the current monitoring period and based on the information verified through the on-site audit and interviews.</p> <p>During the current monitoring period, emissions were reduced to 127,911 tCO₂e. The following values SDGs were attained in this monitoring period by VPA:</p> <table border="1" data-bbox="459 1043 1461 1590"> <thead> <tr> <th>Sustainable Development Goals Targeted</th> <th>SDG Impact</th> <th>Amount Achieved</th> <th>Units/Products</th> </tr> </thead> <tbody> <tr> <td>13 Climate</td> <td>GHG emission reductions</td> <td>127,911</td> <td>tCO₂e/year</td> </tr> <tr> <td>7 Affordable and Clean Energy</td> <td>The number of active CEPs disseminated by the project, during year y</td> <td>15,325 (2021) 14,697 (2022)</td> <td>Number</td> </tr> <tr> <td>8 Decent work and economic growth</td> <td>Number of jobs created by the project activity</td> <td>4</td> <td>Number of jobs</td> </tr> </tbody> </table>	Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/Products	13 Climate	GHG emission reductions	127,911	tCO ₂ e/year	7 Affordable and Clean Energy	The number of active CEPs disseminated by the project, during year y	15,325 (2021) 14,697 (2022)	Number	8 Decent work and economic growth	Number of jobs created by the project activity	4	Number of jobs
Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/Products														
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8 Decent work and economic growth	Number of jobs created by the project activity	4	Number of jobs														

E.4.2. Implementation and operation of the management system

Means of verification	<p>Based on the interview of CME representatives, representatives of different POs (VPA implementers) and monitoring team, it is confirmed that the CME has organized an appropriate management and operational system for monitoring and reporting.</p> <p>The CME co-ordinates with respective POs to establish a marketing and lending program for CEPs. POs staff, local distributors, technicians, and other service providers involved in marketing of CEPs to concerned households. The monitoring plan and procedures to identify each CEP sold have been followed by POs.</p>
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MEC (Micro Energy Credits Corporation Private Limited) is CME for the PoA and responsible for inclusion of VPAs in the PoA. The Carbon Operation Manager of MEC is responsible for completion of the inclusion process.

The Carbon Operation Manager directly reports to the CEO of CME and gets the carbon expert assistance during the VPA inclusion process, if required.

The information about the type of CEP installed under each VPA is stored in Credit Tracker Platform that is maintained by MEC (CME).

The Credit Tracker Platform/18/ records the unique identification number, location, installation date, and usage status of each clean energy product (CEP) in each VPA, helps to identify, locate, and verify any or all of the CEP installations in particular VPA. CME has provided the tracker output file/21/ that is used to ensure that unique identification of CEPs can be tracked. This file has been verified to also ensure that no household receives more than 1 energy efficient stove.

The Carbon Operation Manager at the CME is responsible for QA/QC of the data, analysis and reporting into the monitoring report. For survey data, a monitoring team has been organized by the CME consisting of trained monitoring staff, who conducted the surveys/ field tests and WBTs. The staff was interviewed, and training records/22/ were checked to ensure that they were trained for conducting the surveys/ field tests and WBTs. The monitoring manager at the CME is responsible for QA/QC of the data, analysis and reporting into the monitoring report.

VPA Implementer/PO field staff annually visit households included in the database to cross-check the information on the database with the factual evidence in the field. Any inconsistencies found (e.g., change in the address of a user) are updated on the database, and in the case, CEPs are found to be no longer in use, they will be clearly marked as such and excluded from emission reduction calculations.

The organizational structure and roles and responsibilities for monitoring were in line with the information provided in the VPA-DD/2/, which was confirmed through interviewing PD representatives and the situation on the ground as observed during the onsite visit conducted during current monitoring period, and the structure was considered appropriate.

The CEP users sign a title transfer/13/ with the PO while purchasing the product. The title transfer affirms the legal rights of the carbon credits generated by the CEP to the POs. The verification team cross-checked that that carbon title forms/23/ were duly signed by the end-users. Further, a signed contractual agreement between the PO and the CME/24/ guides the transfer of the emission reduction rights to the CME. It has been checked and verified from sample carbon title transfer forms/13/ and agreement between POs and CME/24/ that for the VPA covered in the current verification, the carbon credits generated from the VPA belong to the POs and are later transferred to the CME (MEC). Similarly, the agreement between equipment manufacturer and CME also confirms that the ownership of CEPs is transferred to CME and POs, along with which carbon rights are also transferred finally to the CME. The verification team confirms that the process pertaining to the transfer of emission reduction rights to CME is valid and appropriate for the real case VPA (GS2435) requesting issuance.

Findings	No findings were raised.
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Conclusion	The verification team assessed the management systems in place to implement the monitoring of the PoA. This included the roles and responsibilities, data collection, transfer and aggregation procedures, data storage and archiving for the monitoring system. The roles and responsibilities data collection transfer and aggregation procedures, data storage and archiving for the monitoring system have been provided in the MR /05/. The verification team confirms that the monitoring management system of the VPA and by extension PoA is in place with the responsibilities properly identified and established as per the PoA-DD/1/.
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E.4.3. Post-registration changes

E.4.3.1. Corrections

Not Applicable

E.4.3.2. Inclusion of a monitoring plan

Not Applicable

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

Not Applicable

E.4.3.4. Changes to the programme design

Not Applicable

E.4.3.5. Addition of CPA inclusion template

Not Applicable

E.4.3.6. Change of coordination/managing entity

Not Applicable

E.4.3.7. Changes specific to afforestation and reforestation activities

Not Applicable

E.5. Voluntary project activity

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

Means of verification	<p>The reporting for this issuance has been done technology-wise, thus section E.5 shall be dealing with distribution of efficient heating stoves and its compliance with PoA-DD/01/ and applicable standard.</p> <p>The real case VPA 01 (GS2435) described in this section target the promotion, distribution, and sale of efficient stoves i.e., Silver Stove Mini (model 131), Silver Stove Turbo (model 26), Royal Stove Dul (Royal Single) and Royal Stove Golomt (Royal Double). According to a third-party lab assessment/25/, these stoves have a thermal efficiency of 71%, 74%, 70%, and 75.8% respectively /25/.</p> <p>MicroEnergy Credits (MEC) is the Coordinating and Managing Entity (CME) for the implementation of VPA. The CME coordinates and manages each Partner Organization (PO)/ VPA Implementer and assists them in</p>
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implementing each element of the monitoring plan, which was confirmed to be the case by interviewing the CME and PO staff.

VPA Ref. #	GS2435
Location / State	Ulaanbaatar
CEP Type	Improved Heating stoves
CEP Model	Silver Stove Mini (model 131) Silver Stove Turbo (model 26) Royal Stove Dul (Royal Single) Royal Stove Golomt (Royal Double)
VPA Implementer / PO	XacBank LLC
Total Quantity Sold / Disseminated	19,422
Estimated VERs (comparable period) (tCO ₂ e)	196,972 tCO ₂ e
Actual VERs from the CEP Type (tCO ₂ e)	127,911 tCO ₂ e

Efficient heating stoves were distributed in Ulaanbaatar in Mongolia, which is consistent with the description given in the included VPA DD/02/. By the end of the current monitoring period requesting issuance, a total of 19,422 ICS were disseminated under the real case VPA 01, which is within the estimated quantity of the VPA DD/02/ for comparable year of distribution. It has been checked by the verification team that the VPA 01 has crossed the small-scale threshold of 180 GWh/year and is a large-scale VPA which is found to be appropriate as per para 3.1.2 (c) of CSA requirements v1.2/13/ and para 9.1.2 (b) of GHG emission reduction and sequestration requirements v2.1/14/. Hence, the VPA is found to be in compliance with the scale stated in the VPA-DD. The distribution model is that stoves are distributed by PO- XacBank LLC, managed by CME. The efficient heating stoves are sold to end users and the sales data is collected by means of sales receipts/23/ at the time of sale to the end-user.

PO has a mechanism of allocating a unique ID to each CEP and the end user so that there is no inter and/or intra-VPA double counting. It was found that PO involved in implementation of VPA involved in this issuance has allocated unique identification numbers to the CEPs sold by them. This information was checked against sample end-user documentation and CME database/19/ and was found to be appropriate. The efficient heating stoves are sold to end users and the sales data is collected by means of sales receipts/23/ at the time of sale to the end user.

This verification report covers the monitoring period from 06/04/2020 to 05/04/2022 (inclusive of both the dates).

Findings

No Findings were raised.

Conclusion

- The verification team is of the opinion that physical features of the VPA have been implemented in accordance with the VPA-DD/2/.
- It is also confirmed, through the review of the supporting documentation, that physical features of the component VPA have been implemented in accordance with the VPA-DD /2/.
- The VPA was also found to be completely operational in line with the VPA-DD /2/.

	<ul style="list-style-type: none"> The information provided in the relevant sections of the monitoring report are appropriately describe the implementation and operational status of the PoA.
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E.5.2. Post-Design Certification changes

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

Not Applicable

E.5.2.2. Corrections

Not Applicable

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

Not Applicable

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

As confirmed from the design change memo/26/ during the design certification renewal, The GS PoA (2434), and VPAs therein, are changing the applied methodology of the design certified PoA (including existing and future VPAs) from AMS-II.E. Energy Efficiency and Fuel Switching Measures for Buildings (version 10) to Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC) (version 4.0) in line with the provisions of paragraph 3.1.6(i) of GS4GG Design Change Requirements.

E.5.2.5. Changes to project design of approved project

The CME is implementing the following changes to the design of the PoA and its VPAs:

- a. Technology/measure removal – Removing the technology/measure of Home Insulation technologies (ger blankets) from the ambit of the design certified PoA (including existing and future VPAs) and continuing with implementation of efficient stoves/heating technologies (space heating stoves) only, for all future VER issuances – in line with the provisions of paragraph 3.1.6(f) of GS4GG Design Change Requirements/27/, and
- b. Project fuel shift – Shifting the fuel used by project technologies in the design certified PoA (including existing and future VPAs) from pit coal to refined coal briquettes - in line with the provisions of paragraph 3.1.6 (e) and (f) of GS4GG Design Change Requirements/27/.

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

Means verification of	The monitoring plan contained in the VPA-DD /2/ was reviewed in relation to the monitoring requirements of the applied methodology, TPDDTEC, version 4.0 /7/, as well as the PoA DD /1/, bearing in mind the technology involved. In light of the review conducted, it was found that the monitoring plan in the VPA-DD/2/ contains all the required parameters to be monitored in the context of the VPA design and description and allows determination of emission reductions according to the PoA DD/1/ and applied methodology/7/.
Findings	No findings raised.
Conclusion	The monitoring plan is in line with the approved methodology, Gold Standard Simplified Methodology "Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC)", version 4.0 /7/, that is included in the

registered PoA DD/1/ and VPA-DD/2/. The monitoring plan is in accordance with the applied methodology /7/ that is included in the VPA-DD/2/.

E.5.4. Compliance of monitoring activities with the registered monitoring plan
E.5.4.1. Data and parameters fixed ex ante or at renewal of crediting period
SDG13: Project technology description

Means of verification	<p>The value of this parameter was cross checked with the manufacturer’s specifications/17/ and test reports/25/. The type of energy efficient stove/heating device and their thermal efficiencies were verified from the manufacturer’s specifications/17/ and test reports/25/.</p> <p>This value is used in the project scenario determination.</p> <p>The value verified is mentioned in the table below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Stove Type (Improved heating device)</th> <th style="text-align: center;">Manufacturer</th> <th style="text-align: center;">Thermal Efficiency</th> <th style="text-align: center;">Stove capacity (KW)</th> </tr> </thead> <tbody> <tr> <td>Silver Stove Mini (model 131)</td> <td>Selenge Construction</td> <td style="text-align: center;">71%</td> <td style="text-align: center;">4.7</td> </tr> <tr> <td>Silver Stove Turbo (model 26)</td> <td>Selenge Construction</td> <td style="text-align: center;">74%</td> <td style="text-align: center;">2.9</td> </tr> <tr> <td>Royal Single/Dul Stove</td> <td>Royal Ocean</td> <td style="text-align: center;">70%</td> <td style="text-align: center;">3.5</td> </tr> <tr> <td>Royal Golomt Stove</td> <td>Royal Ocean</td> <td style="text-align: center;">75.8%</td> <td style="text-align: center;">6.6</td> </tr> </tbody> </table>	Stove Type (Improved heating device)	Manufacturer	Thermal Efficiency	Stove capacity (KW)	Silver Stove Mini (model 131)	Selenge Construction	71%	4.7	Silver Stove Turbo (model 26)	Selenge Construction	74%	2.9	Royal Single/Dul Stove	Royal Ocean	70%	3.5	Royal Golomt Stove	Royal Ocean	75.8%	6.6
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Royal Golomt Stove	Royal Ocean	75.8%	6.6																		
Findings	No findings																				
Conclusion	The value mentioned in the Monitoring Report /5/ and Emission Reduction Spreadsheet /6/ are consistent with the approach given in the registered VPA-DD/2/ wherein it is recommended to establish baseline fuel usage for VPA at the time of verification. Hence the applied value is correct and justified.																				

SDG13: Expected technical life of an individual project technology

Means of verification	<p>The value of this parameter was cross checked with the manufacturer’s specifications/17/. The lifespan of the efficient stoves was verified from the manufacturer’s specifications/17/.</p> <p>This value is used in the project scenario determination.</p> <p>The value verified is mentioned in the table below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Stove Type</th> <th style="text-align: center;">Lifetime (years)</th> </tr> </thead> <tbody> <tr> <td>Silver Stove Mini (model 131)</td> <td style="text-align: center;">15</td> </tr> <tr> <td>Silver Stove Turbo (model 26)</td> <td style="text-align: center;">15</td> </tr> <tr> <td>Royal Stove Dul (Royal Single)</td> <td style="text-align: center;">15</td> </tr> <tr> <td>Royal Golomt Stove (Royal Double)</td> <td style="text-align: center;">15</td> </tr> </tbody> </table>	Stove Type	Lifetime (years)	Silver Stove Mini (model 131)	15	Silver Stove Turbo (model 26)	15	Royal Stove Dul (Royal Single)	15	Royal Golomt Stove (Royal Double)	15
Stove Type	Lifetime (years)										
Silver Stove Mini (model 131)	15										
Silver Stove Turbo (model 26)	15										
Royal Stove Dul (Royal Single)	15										
Royal Golomt Stove (Royal Double)	15										
Findings	No Findings.										

Conclusion	The value mentioned in the Monitoring Report /5/ and Emission Reduction Spreadsheet /6/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.
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SDG13: Avoidance of double counting or double claiming among project participants

Means of verification	<p>The carbon rights waiver form has been provided to the Partner Organization (PO) confirming about the provision to eliminate double counting. It specifies that emission reductions produced by the CEP are handed over from the end user to the PO and afterwards owned by the CME.</p> <p>Since the implementation has already begun, the details were checked through on-site audit interviews and the Title Transfer Form/9/. The verification confirmed that all stoves have a unique ID, a GPS tag, end user data and confirmed the ownership of the emission reductions produced by the CEP ultimately passes from the end-user to the PO to the CME.</p> <p>This value is used in the project scenario determination.</p>
Findings	No Findings.
Conclusion	The verification team confirms from the carbon rights waiver agreement/9/ that the emission reductions generated by the CEP will be only claimed by the CME in order to avoid double counting and the same will be followed for future distribution as well.

SDG13: Avoidance of double counting or double claiming with other mitigation actions

Means of verification	<p>The verification team confirmed from the review of the registry that the VPA with same title is not included in any other voluntary market.</p> <p>This value is used in the project scenario determination.</p>
Findings	No Findings.
Conclusion	The verification team confirms from the CME declaration/37/ that the project has not been registered under any other voluntary market nor will be part of another single CDM project activity or VPA under another PoA.

SDG13: Regulatory framework for provision of thermal energy services

Means of verification	<p>The verification team confirmed that the VPA is in compliance with the host country's laws and regulations. There are no laws or regulations in the host country Mongolia that conflict with the thermal energy supply for a Mongolian household.</p> <p>This value is used in the project scenario determination.</p>
Findings	No findings were raised.
Conclusion	The verification team confirms from VPA is in compliance with the host country laws and regulations

SDG13: CO2 emission factor arising from use of fuels in baseline scenario, tCO₂/TJ

Means of verification	<p>EF_{b,f,CO2}-- The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.2-- Default Emission Factors for Stationary Combustion in the Energy Industries. The value is calculated using the Emission factor of coking coal /28/. This value is used for the determination of baseline emissions.</p> <p>The verified value is: 94.60 tCO₂/TJ (Coking coal)</p>
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Findings	No findings were raised.
Conclusion	The value mentioned in the Monitoring Report /5/ and Emission Reduction Spreadsheet /6/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13: CO₂ emission factor arising from use of fuels in project scenario, tCO₂/TJ

Means verification	<p>of EF_{p,f,CO₂}-- The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.2-- Default Emission Factors for Stationary Combustion in the Energy Industries. The value is calculated using the Emission factor of coking coal /28/. This value is used for the determination of project emissions.</p> <p>The verified value is: 94.60 tCO₂/TJ (Coking coal)</p>
Findings	No findings were raised.
Conclusion	The value mentioned in the Monitoring Report /5/ and Emission Reduction Spreadsheet /6/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13: Net calorific value of the fuel type used in the baseline, TJ/Tonne

Means verification	<p>of NCV_{b,fuel}-- The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1: Introduction, Table 1.2-- Default net calorific values and the default IPCC values for coking coal is applied/28/. This value is used for the determination of baseline emissions.</p> <p>The verified value is: 0.0282 TJ/tonnes (Coking coal)</p>
Findings	No findings were raised.
Conclusion	The value mentioned in the Monitoring Report /5/ and Emission Reduction Spreadsheet /6/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13: Net calorific value of the fuel type used in the project scenario, TJ/Tonne

Means verification	<p>of NCV_{p,fuel}-- The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1: Introduction, Table 1.2-- Default net calorific values and the default IPCC values for coking coal is applied /28/. This value is used for the determination of project emissions.</p> <p>The verified value is: 0.0282 TJ/tonnes (Coking coal)</p>
Findings	No findings were raised.
Conclusion	The value mentioned in the Monitoring Report /5/ and Emission Reduction Spreadsheet /6/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13: Quantity of fuel that is consumed in baseline scenario b during year y, in tonnes/household/day

Means verification	<p>of Quantity Pb,y – tonnes per household per day</p> <p>The value of the parameter Pb,y is based on the Kitchen Performance tests conducted for 3 consecutive days by measuring fuel and moisture in fuel. The final value is obtained from average household size and sample mean of the outliers of 3 days for the quantity of fuel consumption in baseline/35/. The baseline KPT test conducted was found to be in line with the requirements stated in applied methodology. The calculations in the</p>
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	<p>baseline KPT sheets have been reviewed by the VVB at the time of validation and were found to be appropriate.</p> <p>The parameter was cross checked with the baseline kitchen performance test (KPT)¹. The calculation steps and the attendant references in the excel sheet/08/ were checked. The sample mean of the daily consumption of coal for "Ger_Bayan" is 3.5368 kg/day/person which is a statistically determined value at 90/10 confidence interval/precision, derived based on the 4 consecutive days of fossil fuel consumption when the KPT was conducted. The standard deviation of the sample obtained is 1.19 kg from a revised sample size of 107. This effectively removes overestimation of coal estimation in baseline by eliminating the outliers i.e., consumption exceeding 6.82 kg and consumption lower than 0.55 kg in the household in the observational period of 4 consecutive days. The outlier values i.e., 6.82 kg and 0.55 kg was obtained as the 3rd quartile and 1st quartile and from interquartile range of the given coal consumption data during the 4-day observational study and determined as outlier to the pattern. /6/</p> <p>The precision check when applied on the outlier eliminated sample with mean of 3.5368 kg/day/person and a standard error of 0.12 at 90/10 came to 5.50% which is much below the threshold of 10%, hence was acceptable.</p> <p>This value is used in the baseline emission determination.</p> <p>The values verified are:</p> <table border="1" data-bbox="459 1025 1441 1283"> <thead> <tr> <th>Household-district</th> <th>Value (t/HH-day)</th> </tr> </thead> <tbody> <tr> <td>Ger_Bayan</td> <td>0.013365</td> </tr> <tr> <td>Ger_Song</td> <td>0.012641</td> </tr> <tr> <td>Ger_Others</td> <td>0.012972</td> </tr> <tr> <td>House_Bayan</td> <td>0.012634</td> </tr> <tr> <td>House_Song</td> <td>0.012247</td> </tr> <tr> <td>House_Others</td> <td>0.012387</td> </tr> </tbody> </table>	Household-district	Value (t/HH-day)	Ger_Bayan	0.013365	Ger_Song	0.012641	Ger_Others	0.012972	House_Bayan	0.012634	House_Song	0.012247	House_Others	0.012387
Household-district	Value (t/HH-day)														
Ger_Bayan	0.013365														
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Ger_Others	0.012972														
House_Bayan	0.012634														
House_Song	0.012247														
House_Others	0.012387														
Findings	No findings were raised.														
Conclusion	The value mentioned in the Monitoring Report/05/ and Emission Reduction Spreadsheet /06/ are consistent with the approach given in the registered VPA-DD/02/ wherein it is recommended to establish baseline fuel usage for VPA at the time of verification. Hence the applied value is correct and justified.														

E.5.4.2. Data and parameters monitored (Carbon & SDG)
SDG13: Avoidance of double counting or double claiming among project technology end users

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Monitored whenever project technology is sold or otherwise disseminated.

¹ <https://cleancooking.org/binary-data/DOCUMENT/file/000/000/604-1.pdf>

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/01/ and VPA-DD/02/
	Monitoring equipment	Not Applicable
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	VVB has verified through the Carbon title waiver forms/09/ which were signed by the end users provided by the CME. This form is also an end user agreement which states that the end users will not claim the carbon credits associated with the project stoves.
	If applicable, has the reported data been cross-checked with other available data?	VVB has cross checked from public records of other voluntary market and UNFCCC mechanisms and confirms from the CME declaration/36/ that the project has not been registered under any other voluntary market nor will be part of another single CDM project activity or VPA under another PoA.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.	
Findings	CAR#01, CAR#02, CAR#03 and CAR#04 were raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology /7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: Presence of stove stacking

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/01/ and VPA-DD/02/
	Monitoring equipment	Not Applicable
	Calibration frequency /interval:	Not Applicable
How were the values in the monitoring report verified?	VVB has checked the usage of baseline stove or any other stove present in the household via usage survey. The parameter is used to take account of the emission reduction when baseline technology is used in parallel to the project stove. The data is verified by	

		checking the internal records of the MEC Credit tracker-based database excel spreadsheets/18/. During on-site interviews/36/ with the end-users, same has been verified and no stove stacking has been found.
	If applicable, has the reported data been cross-checked with other available data?	VVB has cross-checked the project KPT survey forms/31/ to confirm the values of coal consumption by the project stove in the project KPT survey sheet. VVB has confirmed that no discrepancies were found.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
Findings	CAR#01, CAR#02, CAR#03 and CAR#04 were raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology /7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: Quantity of fuel consumed in project scenario p during year y, P_{p,y} in tonnes/household-day

Relevant SDG Indicator	SDG13: Climate Action																
Means of verification	Criteria/Requirements	Assessment/Observation															
	Measuring /Reading /Recording frequency	The parameter is measured and recorded at least once every two years (biennial)															
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DD /2/															
	Monitoring equipment	<p>This value is derived statistically based on surveys in project scenario, adopting minimum 4 consecutive days of fossil fuel consumption by the sampled household. The weight of the fossil fuel is measured by weighing scales.</p> <p>Accuracy class: +/- 5 grams</p> <p>Serial Number: WB 01 – WB 10</p> <p>Date of recent calibration:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Code Number</th> <th style="width: 33%;">Calibration date</th> <th style="width: 33%;">Calibration due date</th> </tr> </thead> <tbody> <tr> <td>WB -01</td> <td rowspan="2">2/12/2020</td> <td rowspan="2">1/12/2021</td> </tr> <tr> <td>WB-02</td> </tr> <tr> <td>WB-03</td> <td rowspan="2">and</td> <td rowspan="2">and</td> </tr> <tr> <td>WB-04</td> </tr> <tr> <td>WB-05</td> <td rowspan="2">13/12/2021</td> <td rowspan="2">12/12/2022</td> </tr> <tr> <td>WB-06</td> </tr> </tbody> </table>		Code Number	Calibration date	Calibration due date	WB -01	2/12/2020	1/12/2021	WB-02	WB-03	and	and	WB-04	WB-05	13/12/2021	12/12/2022
Code Number	Calibration date	Calibration due date															
WB -01	2/12/2020	1/12/2021															
WB-02																	
WB-03	and	and															
WB-04																	
WB-05	13/12/2021	12/12/2022															
WB-06																	

WB-07		
WB-08		
WB-09		
WB-10		

The moisture of the coking coal briquettes is measured by moisture meter.

Accuracy class: +/- 0.5%

Serial Number: T60D461, T87D376, T22D779

Date of recent calibration:

1st calibration details

Serial Number	Calibration date	Calibration due date
T33D986	15/12/2020	December 2021
T57D902		
T56D826	17/12/2020	December 2021
T89D832		
T67D454	18/12/2020	December 2021
T59D463		
T88D987	16/12/2020	December 2021
T22D779	27/01/2021	January 2022
T60D461	29/01/2021	January 2022
T87D376	02/02/2021	January 2022

2nd calibration details

Serial Number	Calibration date	Calibration due date
T33D986	21/12/2021	December 2022
T57D902		
T56D826	23/12/2021	December 2022
T67D454	24/12/2021	December 2022
T59D463		
T88D987	22/12/2021	December 2022
T57D902		
T22D779	04/02/2022	February 2023
T60D461		
T87D376		

Calibration frequency /interval: Annual Please refer to section E.5.6 of this report for further details.

How were the values in the monitoring report verified? This is statistically derived value whose computation is explained as follows: The 4 consecutive day consumption of the fossil fuel by the sampled household is calculated using 90/10 rule. The purpose of the calculation is to find the mean value of fuel consumption which is as close to the population mean as possible.

The calculation behind this was verified from the "ER_CalculationSheet_VPA1_2435_19.4.2023'.xlxs"/6/. As per 90/10 rule, the mean consumption from the sampled household is accepted if the precision attained is less than 10%. In other words, mean value obtained drawn from simple random sample, in project scenario is likely to be 90% of time closer to the unknown population mean. In the calculation provided by the CME, the precision attained is 8.84% for "Ger_Bayan"/6/ which is less than 10% of the outer bounds if 90/10 is applied, to

		<p>accept the sample mean.</p> <p>The calculation steps, and the applicability with the methodology/7/ was ascertained and found that the value calculated was conservative, as the PD had rejected all upper bound outliers while determining the mean value of coal consumption.</p> <p>The outliers were defined as follows:</p> <p>Upper Outlier Threshold (UOT): Upper Quartile of means of coal consumption + 1.5* interquartile range of coal consumption.</p> <p>Lower Outlier Threshold (LOT): Lower Quartile of means of coal consumption-- 1.5* interquartile range of coal briquettes consumption.</p> <p>For the monitoring period and as per the random sampling of households, the UOT came to 2.77 kg/person/day and LOT came to 0.26 kg/person/day, so the quantity of fuel which are equal to or above 2.77 kg and below 0.26 kg were ignored for arriving at the mean value of the samples.</p> <p>The samples drawn by the CME during this MP is 90 (after adjusting for outliers it came to less than 90) from the beneficiaries in project scenario and the values obtained from the Project KPT are as follows:</p> <table border="1" data-bbox="754 1081 1533 1352"> <thead> <tr> <th>Household-district</th> <th>Value (t/HH-day)</th> </tr> </thead> <tbody> <tr> <td>Ger_Bayan</td> <td>0.00589</td> </tr> <tr> <td>Ger_Song</td> <td>0.00574</td> </tr> <tr> <td>Ger_Others</td> <td>0.00587</td> </tr> <tr> <td>House_Bayan</td> <td>0.00605</td> </tr> <tr> <td>House_Song</td> <td>0.00585</td> </tr> <tr> <td>House_Others</td> <td>0.00639</td> </tr> </tbody> </table>	Household-district	Value (t/HH-day)	Ger_Bayan	0.00589	Ger_Song	0.00574	Ger_Others	0.00587	House_Bayan	0.00605	House_Song	0.00585	House_Others	0.00639
Household-district	Value (t/HH-day)															
Ger_Bayan	0.00589															
Ger_Song	0.00574															
Ger_Others	0.00587															
House_Bayan	0.00605															
House_Song	0.00585															
House_Others	0.00639															
Findings	If applicable, has the reported data been cross-checked with other available data?	Not applicable														
Conclusion	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy. At the outset of each research, the equipment used in KPT is calibrated. Section E.5.6 of this report discusses calibration information. Personnel in charge of carrying out KPT studies are properly trained to supervise data collection and identify any inaccuracies in reported statistics.														
	CAR#01, CAR#02, CAR#03 and CAR#04 were raised and resolved.															
	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology /7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.															

SDG13: Specific fuel savings for an individual project technology of baseline b/project p pair in year y, $SFS_{b,p,y}$ (tonnes/household-day)

Relevant SDG Indicator	SDG13: Climate Action															
Means of verification	Criteria/Requirements	Assessment/Observation														
	Measuring /Reading /Recording frequency	The parameter is measured and recorded at least once every two years (biennial)														
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DD /2/														
	Monitoring equipment	Not applicable as this parameter is calculated from $P_{b,y}$ and $P_{p,y}$.														
	Calibration frequency /interval:	Not Applicable														
	How were the values in the monitoring report verified?	<p>The value of the parameter is calculated using the difference between quantity of fuel consumed in baseline scenario and project scenario.</p> $SFS_{b,p,y} = P_{b,y} - P_{p,y}$ <p>The values mentioned in the monitoring report were checked with the ER calculations sheet/06/ and found to be consistent.</p> <p>The values calculated are as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Household-district</th> <th style="text-align: left;">Value (t/HH-day)</th> </tr> </thead> <tbody> <tr> <td>Ger_Bayan</td> <td>0.0075</td> </tr> <tr> <td>Ger_Song</td> <td>0.0069</td> </tr> <tr> <td>Ger_Others</td> <td>0.0071</td> </tr> <tr> <td>House_Bayan</td> <td>0.0066</td> </tr> <tr> <td>House_Song</td> <td>0.0064</td> </tr> <tr> <td>House_Others</td> <td>0.0060</td> </tr> </tbody> </table>	Household-district	Value (t/HH-day)	Ger_Bayan	0.0075	Ger_Song	0.0069	Ger_Others	0.0071	House_Bayan	0.0066	House_Song	0.0064	House_Others	0.0060
	Household-district	Value (t/HH-day)														
	Ger_Bayan	0.0075														
Ger_Song	0.0069															
Ger_Others	0.0071															
House_Bayan	0.0066															
House_Song	0.0064															
House_Others	0.0060															
If applicable, has the reported data been cross-checked with other available data?	Not Applicable															
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Not Applicable															
Findings	CAR#01, CAR#02, CAR#03 and CAR#04 were raised and resolved.															
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology /7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.															

SDG13: Weighted average usage rate in project scenario p during year y, $U_{p,y}$ (%)

Relevant SDG Indicator	SDG13: Climate Action
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Means of verification	Criteria/Requirements	Assessment/Observation																					
	Measuring /Reading /Recording frequency	Annually																					
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DD /2/																					
	Monitoring equipment	Not applicable as this parameter is ascertained through surveys																					
	Calibration frequency /interval:	Not Applicable																					
	How were the values in the monitoring report verified?	<p>This value is ascertained through annual surveys about the usage of the stoves in the project scenario. The values obtained during this monitoring period are:</p> <table border="1" data-bbox="829 734 1444 1041"> <thead> <tr> <th>Household-district</th> <th>Usage rate in % (2021)</th> <th>Usage rate in % (2022)</th> </tr> </thead> <tbody> <tr> <td>Ger_Bayan</td> <td>83</td> <td>83</td> </tr> <tr> <td>Ger_Song</td> <td>80</td> <td>78</td> </tr> <tr> <td>Ger_Others</td> <td>80</td> <td>77</td> </tr> <tr> <td>House_Bayan</td> <td>60</td> <td>60</td> </tr> <tr> <td>House_Song</td> <td>82</td> <td>77</td> </tr> <tr> <td>House_Others</td> <td>77</td> <td>74</td> </tr> </tbody> </table> <p>This value was accepted after checking the user habit survey results /6/provided by the CME.</p> <p>To achieve a Good Practice utilization rate of up to 90% (estimated value), field team training, end-user training and follow-ups, and an awareness campaign are all necessary. Before distribution, sensitization seminars are organized in each village/area to explain how the stove works. In addition, the field team conducts continuing monitoring operations in the field to verify data quality is up to standard, which serves to encourage stove users to use the stoves and gives them the opportunity to raise questions about the stoves.</p> <p>This was further cross checked with the desk review of documents, sample telephonic cross-check of monitored data by CME reviewer and through interviews as well as during the onsite visit.</p>	Household-district	Usage rate in % (2021)	Usage rate in % (2022)	Ger_Bayan	83	83	Ger_Song	80	78	Ger_Others	80	77	House_Bayan	60	60	House_Song	82	77	House_Others	77	74
Household-district	Usage rate in % (2021)	Usage rate in % (2022)																					
Ger_Bayan	83	83																					
Ger_Song	80	78																					
Ger_Others	80	77																					
House_Bayan	60	60																					
House_Song	82	77																					
House_Others	77	74																					
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable																					

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Not Applicable as the data is based on surveys and interviews with the beneficiaries
Findings	CAR#01, CAR#02, CAR#03 and CAR#04 were raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology /7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: Leakage in project scenario p during year y, LE_{p,y} Tonnes/year

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	At least once every two years (biennial)
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DD /2/
	Monitoring equipment	Not Applicable
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	<p>The verified value in this monitoring period was assessed to be: 0</p> <p>There are 4 ways in which the leakages can occur in this project activity.</p> <ol style="list-style-type: none"> i. The displaced stove is reused outside the project boundary in place of lower emitting technology. ii. The non-renewable biomass/fossil fuel saved due to the project activity are used by non-beneficiaries who previously used lower emitting sources. iii. The project significantly impacts the NRB fraction within an area where other CDM/VER project activities account for NRB fraction in their baseline scenario. iv. The project population compensates for the loss of space heating effect of inefficient tech by adopting some other form of heating or by retaining some use of inefficient technology. <p>However, all the four conditions can be discounted as follows:</p> <ol style="list-style-type: none"> i. The baseline stove was a traditional stove. Owing to the crudeness to its design and

		<p>ease of installation, anybody could install it outside the project boundary and hence there is no risk for the baseline stoves to move outside the project boundary. Further, the baseline stoves were taken away and dismantled when project stoves were given.</p> <p>ii. Due to the abundance of fossil fuel in the project location the risk of fossil fuel use by non-project users does not arise and does not pose a threat to leakage emissions.</p> <p>iii. The baseline and project fuel used in the heating devices is fossil fuel. Therefore, this condition is not applicable.</p> <p>iv. The purpose of the project activity is efficient space heating. Therefore, this condition is not applicable.</p> <p>The calculation steps involved in the sampling method was cross checked and assessed and found to be correct.</p>
	If applicable, has the reported data been cross-checked with other available data?	Not applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
Findings	CAR#01, CAR#02, CAR#03 and CAR#04 were raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology /7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13 and SDG 7: Number of project technology-days included in the project database for baseline b/project p in year y, $N_{b,p,y}$ (technology-days)

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DD /2/
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not Applicable

	How were the values in the monitoring report verified?	<p>The data is verified by checking the records of MEC Credit tracker-based database excel spreadsheets/18/ and sales records/23/.</p> <p>The value of the parameter are:</p> <table border="1"> <thead> <tr> <th>Household-district</th> <th>Value (2021)</th> <th>Value (2022)</th> </tr> </thead> <tbody> <tr> <td>House-Song</td> <td>186,000</td> <td>186,000</td> </tr> <tr> <td>House-Bayan</td> <td>1200</td> <td>1200</td> </tr> <tr> <td>House-Other</td> <td>1,693,440</td> <td>1,693,440</td> </tr> <tr> <td>Ger-Song</td> <td>460,560</td> <td>460,560</td> </tr> <tr> <td>Ger-Banyan</td> <td>5760</td> <td>5760</td> </tr> <tr> <td>Ger-Other</td> <td>2,314,320</td> <td>2,314,320</td> </tr> </tbody> </table> <p>This was further cross checked with the desk review of documents and through interviews during the onsite visit.</p>	Household-district	Value (2021)	Value (2022)	House-Song	186,000	186,000	House-Bayan	1200	1200	House-Other	1,693,440	1,693,440	Ger-Song	460,560	460,560	Ger-Banyan	5760	5760	Ger-Other	2,314,320	2,314,320
	Household-district	Value (2021)	Value (2022)																				
	House-Song	186,000	186,000																				
House-Bayan	1200	1200																					
House-Other	1,693,440	1,693,440																					
Ger-Song	460,560	460,560																					
Ger-Banyan	5760	5760																					
Ger-Other	2,314,320	2,314,320																					
If applicable, has the reported data been cross-checked with other available data?	Yes. The information provided in the VPA Database were verified randomly with the sales receipt/ loan document/23/ and through on-site VVB survey of the household representatives.																						
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	<p>The CME supervises the activities of the PO, providing training, guidelines and templates to facilities accurate record keeping in their MIS system/ Credit tracker platform/18/.</p> <p>During the site visit the sale process, record keeping was reviewed and were found reliable.</p>																						
Findings	CAR#01, CAR#02, CAR#03 and CAR#04 were raised and resolved.																						
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology /7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.																						

SDG8: Number of jobs, Number

Relevant SDG Indicator	SDG8: Decent Work and Economic Growth	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DD /2/
	Monitoring equipment	Not Applicable
	Calibration frequency /interval:	Not Applicable

	How were the values in the monitoring report verified?	VVB has verified from the employee record/30/ provided by the CME that total 20 number of people were hired under all the VPAs and from the on-site audit, VVB has further confirmed that 4 employment opportunities have been generated for each VPA under this project. The verified value is: 4 employees. The employment contracts also confirmed the birth dates of all employees, thus ensuring that the project does not involve child labor.
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
Findings	CAR#01, CAR#02, CAR#03 and CAR#04 were raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology /7/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

E.5.5. Implementation of sampling plan

Means of verification	<p>The sampling plan was implemented by the CME in accordance with the Gold Standard methodology "Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC)", Version 4.0/07/, and the CDM EB 110, Annex 1, Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities/15/. Six different sample frames were picked from population serviced under the VPA01 viz., Usage Surveys of heating stoves and Project KPTs. Thus, the project database/06/ with the demographic cohorts identified during the sampling survey serves along with the user age (whether non-beneficiary, beneficiary, and user for last 1 year and more) as the sample frames for the project population.</p> <p>The VPA's i.e., GS2435 (VPA 01), is implemented in various districts across Mongolia. The coal consumption across Mongolia depends upon two major factors first, a dwelling type and location. The socio-economic conditions in these dwelling-district combination is different as apparent from the preliminary survey done by CME. Hence, CME has divided the total population based on the above and applied simple random sampling. The sampling has been reviewed and found to be appropriate.</p> <p>The sampling frame identified by the CME are:</p> <ol style="list-style-type: none"> 1. Stove in house dwelling type, located in Songinokhairkhan district 2. Stove in house dwelling type, located in Bayangol district 3. Stove in house dwelling type, located in other district 4. Stove in ger dwelling type, located in Songinokhairkhan district 5. Stove in ger dwelling type, located in Bayangol district 6. Stove in ger dwelling type, located in other district
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The overall sample size is determined for monitored parameters is to be distributed within each age category based on percentage of stoves in corresponding age category.

For example,

- If only devices in the first year of use (age 0-1) are being credited, a usage parameter must be established through a usage survey for technologies age 0-1.
- If technologies in the first year of use (age 0-1) and second year of use (age 1-2) are credited, a usage parameter is required that is weighted to be representative of drop off rates for technologies age 0-1 and age 1-2.

Parameters to be covered through monitoring surveys:

The CME has conducted following kinds of surveys:

Usage Surveys:

- $U_{p,y}$ -- Usage rate in project scenario p during year y determined on a sampling basis

Project Monitoring Survey/Project Field Tests:

- $P_{p,y}$ - Quantity of fuel that is consumed in project scenario p during year y, in tonnes, and as derived from the statistical analysis conducted on the data collected during the project performance field tests

Monitoring survey (by CME) duration:

The usage survey was carried out by CME representatives between the following duration for the current monitoring period.

Technology	Monitoring dates	Monitoring frequency	Monitoring survey applicable for this MP?
Efficient stove	07/04/2021 to 14/04/2021 & 08/04/2022 to 05/05/2022	Annual	Yes

Thus, it is confirmed that monitoring survey/31/ is applicable for the entire monitoring period.

Sample size calculation for different tests

Usage Survey:

All monitored parameters were evaluated using simple random sampling with the requisite precision/confidence. A usage survey was done to determine usage and changes in circumstances experienced following the stove project's deployment. The sample size was determined using the TPDDTEC Version 4.0 guideline/07/, which indicates that for a group size more than 1000, a minimum sample size of 100 is required for such a survey. Using MS Excel random selection algorithm, CME drew samples at random from the Monitoring Database. The representation of different age groups of distribution was also considered with 30 samples from each vintage picked in accordance with methodological sampling requirements. To ensure accurate representation of the entire population, the usage surveys were

	<p>conducted on 100 randomly chosen stoves per sampling frame per VPA dispersed across the project distribution boundary.</p> <p>Kitchen Performance Tests (Project KPT):</p> <p>The KPT sample size determination was based on the guidelines provided in the TPDDTEC Version 4.0 methodology/07/ for evaluating the fuel consumption in the project scenario. The sample size in cases of independent samples was calculated, yielding a sample size of 90 per sampling frame per VPA. This resulted in a precision of 90/10 being met.</p> <p>In case, the confidence/precision is not met for any parameter for energy efficient stoves, the upper or lower bound is conservatively applied to arrive at final values for the parameter, which is found in line and acceptable considering the provisions provided in TPDDTEC v4.0/07/.All parameters of interest are included in the ER spreadsheet/06/ for the VPA. These were checked for the input values as well as formula applied and were found consistent. The reliability (demonstration of precision achieved after the survey results) is depicted in the ER calculation sheets/8/ corresponding to final Monitoring Report/05/, which were also found correct.</p>
Findings	None
Conclusion	The verification team confirmed that the sampling plan and the parameter values are in accordance with the monitoring plan provided in PoA DD/1/ and the VPA DD/2/.

E.5.6. Compliance with the calibration frequency requirements for measuring instruments

<p>Means of verification</p>	<p>The registered monitoring plan (in the VPA DD/02/ and PoA DD/01/) does not state the calibration requirements for any of the parameters. However, as good practice, the verification team enquired information with regard to monitoring equipment viz., weighing scale and moisture meter that were used to carry out field KPT tests/33,34/.</p> <p>The devices used in this project activity is mentioned here:</p> <p>Type – Weighing Scale Accuracy class: +/- 5 grams Serial Number: WB 01 – WB 10 Date of recent calibration:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Code Number</th> <th>Calibration date</th> <th>Calibration due date</th> </tr> </thead> <tbody> <tr> <td>WB -01</td> <td rowspan="5" style="text-align: center;">2/12/2020 and 13/12/2021</td> <td rowspan="5" style="text-align: center;">1/12/2021 and 12/12/2022</td> </tr> <tr><td>WB-02</td></tr> <tr><td>WB-03</td></tr> <tr><td>WB-04</td></tr> <tr><td>WB-05</td></tr> <tr> <td>WB-06</td> <td rowspan="5" style="text-align: center;">13/12/2021</td> <td rowspan="5" style="text-align: center;">12/12/2022</td> </tr> <tr><td>WB-07</td></tr> <tr><td>WB-08</td></tr> <tr><td>WB-09</td></tr> <tr><td>WB-10</td></tr> </tbody> </table> <p>Type – Moisture Meter Accuracy class: +/- 0.5 % Serial Number: T60D461, T87D376, T22D779 Date of recent calibration:</p> <p>1st calibration details</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Serial Number</th> <th>Calibration date</th> <th>Calibration due date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Code Number	Calibration date	Calibration due date	WB -01	2/12/2020 and 13/12/2021	1/12/2021 and 12/12/2022	WB-02	WB-03	WB-04	WB-05	WB-06	13/12/2021	12/12/2022	WB-07	WB-08	WB-09	WB-10	Serial Number	Calibration date	Calibration due date			
Code Number	Calibration date	Calibration due date																						
WB -01	2/12/2020 and 13/12/2021	1/12/2021 and 12/12/2022																						
WB-02																								
WB-03																								
WB-04																								
WB-05																								
WB-06	13/12/2021	12/12/2022																						
WB-07																								
WB-08																								
WB-09																								
WB-10																								
Serial Number	Calibration date	Calibration due date																						

	T33D986 T57D902	15/12/2020	December 2021
	T56D826 T89D832	17/12/2020	December 2021
	T67D454 T59D463	18/12/2020	December 2021
	T88D987	16/12/2020	December 2021
	T22D779	27/01/2021	January 2022
	T60D461	29/01/2021	January 2022
	T87D376	02/02/2021	January 2022
	2nd calibration details		
	Serial Number	Calibration date	Calibration due date
	T33D986 T57D902	21/12/2021	December 2022
	T56D826	23/12/2021	December 2022
	T67D454 T59D463	24/12/2021	December 2022
	T88D987 T57D902	22/12/2021	December 2022
	T22D779 T60D461 T87D376	04/02/2022	February 2023
	It is noteworthy that the registered monitoring plan does not specify any calibration frequency however, CME has maintained an internal annual frequency for calibration of the instruments. VVB has verified the dates of calibration and frequency from the calibration certificates/33//34/ provided by the CME and were found to be in line with the calibration frequency stated by the CME in the MR. All the monitoring surveys took place on the days when all the equipment were under calibration.		
Findings	No findings raised.		
Conclusion	The verification team confirms that CME applied good practices (as per manufacturer recommendation) while using the monitoring equipment and these were under the state of calibration. There is no specific requirement prescribed in this regard in the registered monitoring plan of monitoring methodology. The monitoring devices were found to be calibrated during the field test/33,34/.		

E.5.7. Assessment of data and calculation of emission reductions or net removals
E.5.7.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

Means of verification	1- <u>SDG-13: Climate Action</u>
	<p>The equations used were found consistent with the PoA DD/1/, VPA DD/2/ and the applied methodology TPDDTEC, version 4.0/7/</p> <p>Using TPDDTEC-- Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 4.0/7/, "When the baseline fuel and the project fuel are the same and the baseline emission factor and project emission are considered the same, the overall GHG reductions achieved by the project activity in year y are calculated as follows:"</p>

$$ER_y = \sum_{b,p} (N_{b,p,y} * U_{p,y} * SFS_{p,b,y} * NCV_{b, fuel} * (f_{NRB,b,y} * EF_{b,f, CO2} + EF_{b,f, nonCO2})) - \sum LE_{p,y} \quad \text{(Eq.3)}$$

Where:

$\sum_{b,p}$: Sum over all relevant (baseline b/project p) pairs.

$N_{b,p,y}$: Number of project technology – days included in the project database for baseline b/project p pair in year y (days)

$U_{p,y}$: Cumulative Usage rate for technologies in project scenario p in year y (fraction)

$SFS_{p,b,y}$: Specific fuel savings for an individual project technology of baseline b/project p pair in year y, (mass or volume units/technology*day).

$NCV_{b, fuel}$: Net calorific value of the fuel(s) that is substituted or reduced in baseline b (TJ/mass or volume units).

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

$EF_{b,f,CO2}$: CO₂ emission factor from use of fuel f (tCO₂/TJ).

$EF_{b,f,non CO2}$: Non – CO₂ emission factor arising from use of fuel f, when the baseline fuel f is biomass or charcoal (tCO₂/TJ). This parameter is omitted when f is a fossil fuel.

$LF_{p,y}$: Leakage for project scenario p in year y (tCO₂e/yr).

For Ger- Songinokhairkhan (1st Year)

$$ER_y = 460,560 * 80\% * 0.0069 * 0.0282 * 94.6 - 0 = 6,780 \text{ tCO}_2\text{e}$$

Leakage if applicable, will be assessed on the following points:

- a. The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project.
- b. The NRB or fossil fuels saved under the project activity are used by non-project users who previously used lower emitting energy sources.
- c. The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario.
- d. The project population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating or by retaining some use of inefficient technology.

In line with para 3.11 of TPDDTEC (v4.0) as the project involves installation of new energy efficient heating systems using fossil fuel hence leakage emission is considered zero.

	<p>b) <u>SDG-7: Affordable clean energy</u></p> <p>ACS_{baseline} Access to affordable and clean energy (Number of operating stoves units under baseline) = 0</p> <p>c) <u>SDG-8: Decent Work</u></p> <p>QE IG_{Baseline} Quantitative Employment and income generation (Number of person (male or female) hired under baseline) = 0</p> <p>Detailed assessment of all the parameters used to calculate emission reductions is provided under section E.5.4.2.</p> <p>The calculations presented in the Monitoring Report/05/ and the corresponding ER sheet/06/ were found appropriate and complying with provisions prescribed in the registered monitoring plan/02/ of the respective VPA-DD/02/, PoA-DD/01/ and applied methodology/07/.</p>
Findings	CL#02 was raised and resolved
Conclusion	<p>The verification team verified that:</p> <p>a) A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.5.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet/06/ of final Monitoring Report/05/.</p> <p>b) The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5.4.2 of this report.</p> <p>c) The calculations of baseline emissions as presented in the corresponding ER calculations sheet/06/ of final Monitoring Report/05/ were checked and found to be consistent with the formulae and methods described in the registered monitoring plan of VPA-DD/02/, registered PoA-DD/01/ and the applied methodology/07/.</p> <p>d) All assumptions used in the emission calculations were found appropriate and therefore justified.</p> <p>e) Appropriate emission factors, IPCC default factors/28/ and other reference values have been correctly applied. This has also been elaborated under Section E.5.4.1 of this report.</p> <p>f) No standardized baseline was prescribed in the registered PoA-DD/01/.</p>

E.5.7.2. Calculation of project value or estimation of project situation of each SDG Impact

Means of verification	<p>a) <u>SDG-13: Climate Action</u></p> <p>The equations calculating for emission reductions already accounts for project emissions.</p> <p>b) <u>SDG-7: Affordable clean energy</u></p> <p>The following formula is used to determine the number of active CEPs distributed by the project during year y:</p> $CEP_{a,y} = \text{No. of installed CEPs} * U_{p,y}$ <p>For Ger- Bayan (1st Year)</p>
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	$CEP_{a,y} = 24 * 83\%$ $=20$ (approx.) <p>Thus, the project activity has 15,011 active energy efficient stoves for the MP in VPA 01.</p> <p>c) <u>SDG-8: Decent Work</u></p> <p>QE IGProject: Quantitative Employment and income generation (Number of person (male and female) hired under Project) = 4</p>
Findings	CL#02 was raised and resolved
Conclusion	<p>The verification team verified that:</p> <p>a) A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.5.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet/06/ of final Monitoring Report/05/.</p> <p>b) The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5.4.2 of this report.</p>

E.5.7.3. Calculation of leakage

Means of verification	<p>Leakage, if applicable, will be assessed on the following points:</p> <p>a) The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project.</p> <p>b) The NRB or fossil fuels saved under the project activity are used by non-project users who previously used lower emitting energy sources.</p> <p>c) The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario.</p> <p>d) The project population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating or by retaining some use of inefficient technology.</p> <p>In line with para 3.11 of TPDDTEC (v4.0), as the project involves installation of new energy efficient heating systems using fossil fuel hence leakage emission is considered zero.</p> <p>The 4 conditions under which the leakage should be accounted is not observed under the VPA. The detailed discussion on the same is provided in section E.5.4.2 above under the parameter: SDG13: LE_{p,y}</p>
Findings	None
Conclusion	<p>A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.5.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet /6/ of final Monitoring Report /5/. The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5.4.2 of this report.</p>

E.5.7.4. Calculation of net benefits or direct calculation for each SDG Impact

Means verification of	SDGs Targeted	SDG Impact	Baseline estimate	Project estimate	Net benefit
	13	Climate Action	65,284 (06/04/2020 - 05/04/2021) 62,627 (06/04/2021 - 05/04/2022)	0	65,284 (06/04/2020-05/04/2021) 62,627 (06/04/2021-05/04/2022)
	7	Affordable and clean energy	0	15,325 (06/04/2020-05/04/2021) 14,697 (06/04/2021-05/04/2022)	15,325 (06/04/2020-05/04/2021) 14,697 (06/04/2021-05/04/2022)
	8	Decent work and economic growth	0	4 (06/04/2020-05/04/2021) 4 (06/04/2021-05/04/2022)	4 (06/04/2020-05/04/2021) 4 (06/04/2021-05/04/2022)
The calculation methods applied for all the SDG impacts were checked with PoA-DD/1/ and VPA-DD/2/. The verification team confirms that the stated figures were checked and found acceptable.					
Findings	None				
Conclusion	<p>The verification team confirms that:</p> <ul style="list-style-type: none"> a) The complete data was available and is duly reported; b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section E.5.4 of this report); c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed; d) Appropriate emission factors, IPCC default factors and other reference values were correctly applied; e) The total number of VERs for ICS distribution achieved during the current monitoring period is 127,911 tCO₂e. 				

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

Means verification of	From Section E.5 of the Monitoring Report, it is apparent that estimated values were off while the project monitored its progress.				
	SDGs Targeted	SDG Impact	Values estimated in ex ante calculation approved PoA-DD for monitoring period	Actual values achieved during this monitoring period	Actual values achieved during this monitoring period

	13	Climate Action	196,972	127,911
	7	Affordable and clean energy	17,479	15,011
	8	Decent Work and Economic Growth	4	4
<p>As the result of the VPA-DD, 196,972 tCO₂e were expected to be reduced within a time frame of 06/04/2020-05/04/2022 (both days inclusive). However, based on monitoring data, actual emission reductions so far are only 127,911 tCO₂e during this monitoring period i.e., just 54% of the estimated emissions reductions was achieved during the current monitoring period.</p> <p>The actual SDG targets against the anticipated values in PoA-DD and VPA-DD is lower for all the SDGs as tabulated above. The primary reason being in the PoA-DD and VPA-DD sales for the respective technology are lower than expected in the VPA-DD. Thus, the achieved SDG targets are much lower than anticipated.</p>				
Findings	CAR#05 was raised and resolved.			
Conclusion	The actual emission reductions achieved in the current monitoring period for the VPA is lower than the emission reductions as well as for other SDG targets stated in the VPA-DD /2/. Therefore, it has been accepted by the verification team.			

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

Means of verification	The Monitoring Report/05/ and corresponding ER calculations sheet /06/, show that the actual emission reductions achieved for project stove during this monitoring period are less than the estimate provided in VPA-DD/02/.
Findings	None
Conclusion	No justification was sought from the PD because the achievement of emission reductions was lower than what had been estimated.

E.7. Stakeholder Inputs and Legal Disputes

Means of verification	<p>Since there were no negative comments reported in the Grievance mechanism for the current period, as confirmed from the logbooks/29/ and interviews of the end users, this section is not applicable.</p> <p>No Legal disputes have been indicated by the CME and PO during the interviews. CME has added declaration in the monitoring report indicating that no legal contest has arisen during this monitoring period.</p> <p>The stakeholder mitigations that were agreed to be monitored include aftersales mechanism to ensure customer complaints are registered and addressed continuously. Interviews of end-users were conducted by the VVB representatives, and all end-users confirmed that they were aware of the complaints mechanism and had contact information of the PO representatives in case they have any complaints regarding the CEPs. The measures to address such complaints may include repair or replacement of CEPs, depending on the degree of damage.</p>
Findings	No Findings
Conclusion	Since there were no negative comments reported in the Grievance mechanism for the current Period. This section is not applicable.

E.8. Safeguards Reporting

Means of verification	<p>The VPA-DD provides mitigation measures for the following Safeguarding principle-</p> <p>Principle 6.1: Labour Right- Sample employment contracts were reviewed by assessment team, and it was confirmed that the contract is in compliance with laws and regulations of the host country. Additionally, the birth dates of the employees were checked, and it could be confirmed that all employees are over 18 years of age.</p> <p>Principle 9.4: Release of pollutants- The Partner Organisation representatives were interviewed, and it was confirmed that mechanism for scrap procurement is in place. Any requests for scrap collection may be registered through direct call to the PO representatives and sample receipts were reviewed to confirm the same. It was concluded from the interviews and collection receipts that the scrap material is being collected by contractors who recycle/destroy the scrap depending on its usability.</p>
Findings	No Findings
Conclusion	The mitigation measures for safeguarding principles 6.1 and 9.4 are found in place and in line with requirements of the VPA-DD.

SECTION F. Internal quality control

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

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

SECTION G. Verification opinion

Earthood Services Private Limited (Earthood), contracted by MicroEnergy Credits LLC, has performed the independent verification of the emission reductions for the GS PoA (GS2434) "MicroEnergy Credits – Mongolia -Microfinance for Clean Energy Product Lines VER Project " and its real case VPA GS 2435 "GS2434 MicroEnergy Credits – Mongolia - Microfinance for Clean Energy Product Lines VER Project – VPA No.001: XacBank LLC- VPA 1" in the host country Mongolia" for the monitoring period 06/04/20200 to 05/04/2022 (both dates inclusive), as reported in the Monitoring Report, Version 2.4 dated 25/04/2023. The 'MicroEnergy Credits LLC' is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity. Earthood commenced the verification against the baseline and monitoring methodology "Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumptions (TPDDTEC), Version 4.0", the monitoring plan contained in the VPA-DD and Monitoring Report Version 2.4 dated 25/04/2023.

VVB's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Earthood planned and performed the verification by obtaining evidence and other information and explanations that Earthood considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

The verification team confirms that:

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

SECTION H. Certification statement

ESPL’s verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. ESPL planned and performed the verification by obtaining evidence and other information and explanations that ESPL considered necessary to give reasonable assurance that the reported GHG emission reductions are fairly stated.

In our opinion, the GHG emissions reductions reported for the project activity are fairly stated in the Monitoring Report (final) Version 2.4 dated 25/04/2023. ESPL, based on outcome of verification activities, certifies in writing that, during the monitoring period 06/04/2020 to 05/04/2022 (inclusive of both the dates), the registered GS VPA – GS2434 “MicroEnergy Credits – Microfinance for Clean Energy Product Lines – VER Project” achieved the verified amount of 127,9114 tCO₂e reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the PoA.

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

Verified GS voluntary emission reductions for the monitoring period:

Monitoring period	Amount (tCO ₂ e)
From 06/04/2020 till 31/12/2020	48,292
From 01/01/2021 till 31/12/2021	63,319
From 01/01/2022 till 05/04/2022	16,300
Total	127,911

Appendix 1. Abbreviations

Abbreviations	Full texts
AQL	Acceptable Quality Level
CAR	Corrective Action Request
CH ₄	Methane
CL	Clarification Request
CME	Coordinating and Managing Entity
CO ₂	Carbon dioxide
COV	Coefficient of Variance
VPA	Voluntary project Activity
CP	Crediting period
ER	Emission Reductions
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GS4GG	Gold Standard for Global Goals
GPS	Geographical Positioning System
HH	Household
ICS	Improved Cook Stoves
ID	Identity

IR	Internal Resource
IPCC	Intergovernmental Panel on Climate Change
Kg	kilogram
KPT	Kitchen Performance Test
MR	Monitoring Report
NCV	Net Calorific Value
PDD	Project Design Document
PO	Partner Organization
PoA	Programme of Activities
PD	Project Developer
QA/QC	Quality Assurance/ Quality Control
RMP	Registered monitoring plan
SPM	Suspended Particulate Matter
TA	Technical Area (with in Sectoral Scope)
TR	Technical Review/er
TJ	Terra Joule
VCR	Verification and Certification report
VER	Verified Emission Reduction
VVS	Validation and Verification Standard
UNFCCC	United Nations Framework Convention on Climate Change
UQL	Unacceptable Quality Level
VPA/VPA-DD	VPA is for 'Verified Project Activity' (whereas DD stands for Design Document)
VVB	Validation and Verification Body
UNFCCC	United Nation Framework convention on Climate change

Appendix 2. Competence of team members and technical reviewers

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

Competence Statement			
Name	Munkhzul Nergui		
Education	Bachelors in English		
Experience	5 years		
Field	English teacher - translator		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	YES (Mongolia)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Reviewed by	Shifali Guleria (Quality Manager)	Date	20/07/2022
Approved by	Deepika Mahala (Technical Manager)	Date	20/07/2022

Competence Statement			
Name	Jahnabi Kalita		
Education	M.Sc. Environment Management		
Experience	1 year		
Field	Environment, Climate change		
Approved Roles			
Team Leader	Yes (VM)		
Validator	Yes (VM)		
Verifier	Yes (VM)		
Methodology Expert	NO		
Local expert	Yes (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	Yes		
Reviewed by	Shifali Guleria, Quality Manager	Date	24/09/2022
Approved by	Deepika Mahala, Technical Manager	Date	24/09/2022

Competence Statement	
Name	Deepika Mahala
Country	India

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

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	MicroEnergy Credits	PoA-DD (GS2434)	Version 3.0, dated 18/04/2023	CME
2.	MicroEnergy Credits	Real case VPA-DD (VPA 01, GS2435)	Version 2.4, dated 24/04/2023	CME
3.	ESPL	Validation Report for inclusion of VPA 01	Version 1.2, dated 26/04/2023	Others
4.	MicroEnergy Credits	Monitoring report template Guide	Version 1.1, published on 14/10/2020	Others
5.	MicroEnergy Credits	Monitoring report (final)	Version 2.4, dated 25/04/2023	CME
6.	MicroEnergy Credits	ER_Calculation sheet_VPA1 (2435)	Pertaining to latest MR	CME
7.	The Gold Standard Foundation	Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC)	Version 4.0, Dated: 07/10/2021	Others
8.	The Gold Standard Foundation	GS webpage of the PoA: https://registry.goldstandard.org/projects/details/348	Last accessed on 21/02/2023	Others

		GS webpage of VPA 01: https://registry.goldstandard.org/projects/details/349		
9.	MicroEnergy Credits	Carbon Title transfer document/End user agreement	-	CME
10.	The Gold Standard Foundation	Approved Deviation form	dated 01/06/2022	CME
11.	The Gold Standard Foundation	Principle and requirements	Version 1.2	Others
12.	The Gold Standard Foundation	PoA Requirements	Version 2.0	Others
13.	The Gold Standard Foundation	CSA Requirements	Version 1.2	Others
14.	The Gold Standard Foundation	GHG emission reduction and sequestration product requirements	Version 2.1	Others
15.	UNFCCC	Standard: sampling and surveys for CDM project activities and programme of activities	Version 9.0	Others
16.	UNFCCC	Guidelines: sampling and surveys for CDM project activities and programme of activities	Version 4.0	Others
17.	MicroEnergy Credits	Technical specification of Efficient stoves	-	CME
18.	MicroEnergy Credits	Credit Tracker Platform Screenshots	-	CME
19.	MicroEnergy Credits	Project Database	-	CME
20.	MicroEnergy Credits	Grievance Logbook		CME
21.	MicroEnergy Credits	Tracker output file	-	CME
22.	MicroEnergy Credits	Training records and photos	-	CME
23.	MicroEnergy Credits	Original copies of sales receipts / invoices/ warranty cards	-	CME
24.	MicroEnergy Credits	MEC and PO's agreement	-	CME
25.	MUST-EIHTP	Efficiency test report	2014	CME
26.	MicroEnergy Credits	Design change memo	11/04/2022	CME
27.	The Gold Standard Foundation	Design change requirements	Version 1.0	CME
28.	IPCC	IPCC Guidelines for National Greenhouse Gas Inventories 2.1 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf)	-	Others
29.	MicroEnergy Credits	Grievance Logbook	-	CME
30.	XacBank LLC	Employment contracts	-	CME

31.	MicroEnergy Credits	Monitoring survey reports for monitored parameters	Various	CME
32.	MicroEnergy Credits	Questionnaire used during the survey for each type of CEP	-	CME
33.	MicroEnergy Credits	Calibration certificates of moisture meter	Dated 27/01/2021 Dated 29/01/2021 Dated 02/02/2021	CME
34.	MicroEnergy Credits	Calibration certificates of weighing scale	Dated 21/12/2019	CME
35.	MicroEnergy Credits	Declaration on avoidance of double counting	-	CME
36.	ESPL	<u>VVB On site Survey files</u>	19/09/2022 to 20/09/2022	Others

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

CAR: Corrective Action Request

CL: Clarification Request

FAR: Forward Action Request

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

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

TABLE 2. CL FROM THIS VERIFICATION

CL ID	Section no.	E.4.1	Date : 16/02/2023
Description of CL			
<p>1. In line with para 8.9.97 of PoA Requirements, version 2.0 "Design Certification Renewal follows the same process as Validation/ inclusion and Design Review (Design Certification) though the scope of assessment is limited to: b) Incorporation of any relevant updates to the Gold Standard Requirements",</p> <p>Please clarify if the VPA" MicroEnergy Credits – Mongolia - Microfinance for Clean Energy Product Lines VER Project – VPA No.001: XacBank LLC" a real case or regular VPA.</p> <p>2. The last MP for which GS VERs were issued was 02/09/2012 – 30/04/2013 as per as GS registry (https://registry.goldstandard.org/credit-blocks/details/937). Please clarify the gap in the MP.</p>			
Project participant response			Date : 5/03/2023

1. The VPA" MicroEnergy Credits – Mongolia - Microfinance for Clean Energy Product Lines VER Project – VPA No.001: XacBank LLC" is a real case VPA.
2. The GS PoA (GS ID - 2434) and 8 VPAs (GS ID - 2435, 2684 to 2690) were registered in 2014. Six of the VPAs (GS ID - 2435, 2684 - 2688) have undergone the first issuance with the verification site visit done from 10-13 Feb 2014. No further issuances were carried out for these VPAs and the Crediting period for the PoA and the VPAs has lapsed. The Crediting period 1 details are provided below –

GS 2434 - May 25, 2011 – May 25, 2018 (PoA)

GS 2435 - Sep 02, 2012 – Sep 01, 2019

GS 2684 - Sep 02, 2012 – Sep 01, 2019

GS 2685 - Sep 02, 2012 – Sep 01, 2019

GS 2686 - Sep 02, 2012 – Sep 01, 2019

GS 2687 - Sep 02, 2012 – Sep 01, 2019

The PP had planned for crediting period renewal under Gold Standard to avail the VERs from 2nd September 2019. However, with the outbreak of COVID, Mongolia was out of bounds for MEC team (CME of the PoA) which is based in India. The travel to Mongolia was essential at the time, because of multiple changes like changes in methodology, changes in baseline and several other requirements, which was not possible to be conducted remotely at that time. Due to this, there was a delay in renewal of Crediting period of PoA and CPA-1 to CPA-5. During this duration, the project participant has maintained the monitoring data, which has been collected remotely in these regions through intermittent surveys/field visits that have been possible using local sales agents.

Further, the deviation request was approved by GS according to which the project can undergo design certification renewal, with the crediting period starting immediately after the end date of the previous CP. However, GS VERs can be claimed from 06/04/2020 (6th April 2020) or three years (retroactive) from the date of remote/physical site visit by a VVB, whichever occurs later. No credits (and SDG Impacts) can be claimed for the period of delay before 06/04/2020.

Documentation provided by project participant

Deviation form Reference No.- COVID DEV_261 approved on 1/06/2022

VVB assessment

Date: 15/03/2023

1. VPA01 is now considered a real case VPA in line with para 3.6.1 of PoA requirements, version 2.0.

2. The approved deviation form submitted by CME substantiates that GS VERs can be claimed from 06/04/2020 (6th April 2020) or three years (retroactive) from the date of remote/physical site visit by a VVB, whichever occurs later. No credits (and SDG Impacts) can be claimed for the period of delay before 06/04/2020.

Thus, Cl#01 is closed.

CL ID	02	Section no.	E.5.7	Date : 16/02/2023
Description of CL				

1. "Project KPT-House_Baya" worksheet of ER sheet only records 3 samples and Project KPT-Ger_Baya" worksheet of ER sheet only records 19 samples for Project KPT. However, it is reported 90 samples each for district under section D.4 of the MR. Please justify the inconsistency and sample size inline with Annex 2 of the applied methodology.

2. PD is requested to fill up section E.1 of the MR inline with the template guidelines "Under a heading for each SDG, provide sample calculations for all formulae used to calculate/estimate baseline values (SDG 13 - emissions or net baseline removals), applying actual values." for SDG 7 and SDG 8 in accordance with B.6.4 of the VPA DD.

3. Please justify the SDG impact for SDG 7 and 8 achieved during the current MP "Under a heading for each SDG, provide sample calculations for all formulae used to calculate/estimate project values (SDG 13 - emissions or net removals), applying actual values.

Project participant response	Date : 5/03/2023
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1. The section D.4 of the MR has now been corrected to reflect the correct sample size as per ER sheet
2. The section E.1 of the MR has been revised in line with template guidelines
3. The sample calculations have been added to the MR for SDG13, SDG 7 and SDG 8

Documentation provided by project participant
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VVB assessment	Date: 15/03/2023
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1. Section D.4 under revised MR is now corrected and is consistent with the ER sheet.
2. Section E.1 of the revised MR is now filled inline with the MR template guidelines.
3. Section E.2 of the revised MR is now filled inline with the MR template guidelines.

CL#02 is closed

TABLE 3. CAR FROM THIS VERIFICATION

CAR ID	01	Section no.	E.5.4.1	Date : 16/02/2023
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Description of CAR

1. The Value of the parameter Pb,y is recorded under cell no. C17 and D17, "ER calcs_Ger-Bayan", "ER calcs_Ger_Song", "ER calcs_Ger- Others " , "ER calcs_House -Bayan" , "ER calcs_House-Song " , " ER calcs_House-Others" worksheets of the ER sheet.:

Household-district	Value (t/HH-yr)
Ger_Bayan	0.0147
Ger_Song	0.0139
Ger_Others	0.0143
House_Bayan	0.0141
House_Song	0.0133
House_Others	0.0138

Please clarify the inconsistency between the VPA DD, MR and ER sheet.

Project participant response	Date : 5/03/2023
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The Pb,y i.e baseline fuel consumption was monitored using Baseline KPTs performed in 2021 which is a fixed parameter and the same values have been taken for the 2nd year of the MP.

Documentation provided by project participant
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VVB assessment	Date: 15/03/2023
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Pb,y is now reported consistently with the revised ER sheet under section D.1 of the revised MR.

Thus CAR#01 is closed.

CAR ID	02	Section no.	E.5.4.2	Date : 16/02/2023
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Description of CL	
1. The Value of the parameter $P_{p,y}$ is recorded under cell no. C18 and D18, "ER calcs_Ger-Bayan", "ER calcs_Ger_Song", "ER calcs_Ger- Others ", "ER calcs_House -Bayan" , "ER calcs_House-Song " , " ER calcs_House-Others" worksheets of the ER sheet:	
Household-district	Value
Ger_Bayan	0.0059
Ger_Song	0.0057
Ger_Others	0.0059
House_Bayan	0.0061
House_Song	0.0059
House_Others	0.0064
Please clarify the inconsistency with the values reported under D.2 of the MR.	
Project participant response	Date : 5/03/2023
<i>The parameter $P_{p,y}$ i.e. baseline fuel consumption was monitored using Project KPTs performed in 2021 which is a biennial monitored parameter and the same values have been taken for the 2nd year of the MP.</i>	
Documentation provided by project participant	
VVB assessment	Date: 15/03/2023
Pp,y is now reported consistently with the revised ER sheet under section D.2 of the revised MR.	
Thus CAR#02 is closed.	

CAR ID	03	Section no.	E.5.4.2	Date : 16/02/2023
Description of CAR				
1. The Value of the parameter $SFS_{b,p,y}$ is recorded under cell no. C19 and D19, "ER calcs_Ger-Bayan", "ER calcs_Ger_Song", "ER calcs_Ger- Others ", "ER calcs_House -Bayan" , "ER calcs_House-Song " , " ER calcs_House-Others" worksheets of the ER sheet.:				
Household-district	Value			
Ger_Bayan	0.0088			
Ger_Song	0.0082			
Ger_Others	0.0084			
House_Bayan	0.0081			
House_Song	0.0075			
House_Others	0.0075			
Please clarify the inconsistency with the values reported under D.2 of the MR.				
Project participant response				Date : 5/03/2023
The $P_{b,y}$ i.e baseline fuel consumption was monitored using Baseline KPTs performed in 2021 which is a fixed parameter and the same values have been taken for the 2 nd year of the MP. The parameter $P_{p,y}$ i.e. baseline fuel consumption was monitored using Project KPTs performed in 2021 which is a biennial monitored parameter and the same values have been taken for the 2 nd year of the MP. Therefore, to calculate $SFS_{b,p,y}$ for the two years of the MP same values have been used.				
Documentation provided by project participant				
VVB assessment				Date: 15/03/2023
SFS _{b,p,y} is now reported consistently with the revised ER sheet under section D.1 of the revised MR.				
Thus CAR#03 is closed.				

CAR ID	04	Section no.	E.5.4.2	Date : 16/02/2023
Description of CAR				
The answer to question "Do you have traditional heatingstove" was recorded as "YES" in row R of "Usage,leakage survey-2021" and "Usage,leakage survey-2022" worksheet of ER sheet for various end-users(for eg- stove IDs "3631", "24839", "26J8S" in Ger_Bayan district). Please clarify why is the value of the parameter, LEp,y then calculated as 0 for all the districts inline with para 3.11.4 of the applied methodology.				
Project participant response				Date : 5/03/2023
The leakage is considered zero as the leakage emissions are accounted when the baseline stove is in use, however, under project scenario the baseline stoves were dismantled when the project stoves were provided to the households. In the project scenario the households are using the new traditional stoves and are not using baseline stoves.				
Documentation provided by project participant				
VVB assessment				Date: 15/03/2023
The leakage assessment is correctly reported as the project stoves have replaced the baseline inefficient stoves and as confirmed from the VVB audit, no end-users possessed the baseline stove in their household. Thus, CAR#04 is closed.				

CAR ID	05	Section No.	E.5.7	Date : 16/02/2023
Description of CAR				
1. Please clarify how the ex-ante estimate for SDG 7 is calculated as 15,721 under section E.5 of the MR value when ex-ante estimate per year is 17,479 as per as B.6.4 of the VPA DD, version 2.0.				
2. The equation to calculate emission reductions achieved by the project activity is as follows inline with the applied methodology: $ERY = \sum_{b,p} (Nb,p,y * Up,y * SFS_{p,b,y} * NCV_{b, fuel} * (f_{NRB,b, y} * E_{fuel, CO2} + E_{fuel, nonCO2})) - \sum LE_{p,y}$ PD is requested to justify the equations reported as $(ERY = \sum_{b,p} (Nb,p,y * Up,y * SFS_{p,b,y} * NCV_{b, fuel} * E_{fuel, CO2} - \sum LE_{p,y})$ under cell no.s C21 and D21 of "ER calcs_Ger-Bayan", "ER calcs_Ger-Song", "ER calcs_Ger-Others", "ER calcs_house-song", "ER calcs_house-Others" "ER calcs_house-Bayan" worksheets of the ER sheet.				
Project participant response				Date : 5/03/2023
1. The section E.5 of the MR has been updated with correct values. 2. Since the project stoves use fossil fuel for heating the $E_{fuel, nonCO2}$ are not considered and since no biomass use is accounted the parameter f_{NRB} is also not considered.				
Documentation provided by project participant				
VVB assessment				Date: 15/03/2023
1. SDG 7 is now estimated inline with the latest version of the VPA DD and is consistently reported under section E.5 of the MR.				
2. The equation for calculating emission reductions achieved by the project activity is inline with the applied methodology and is correctly applied by the CME. Hence achieved ERs during the current Monitoring period is free of material erros.				
CAR#05 is closed				

TABLE 4. FAR FROM THIS VERIFICATION

FAR ID	NA	Section No.	NA	Date : DD/MM/YYYY
Description of FAR				

NA	
Project participant response	Date : DD/MM/YYYY
NA	
Documentation provided by project participant	
NA	
VVB assessment	Date: DD/MM/YYYY
NA	

there is no FAR from this verification.