

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

BASIC INFORMATION


Title of the GS4GG Programme of Activity (PoA)	PoA GS ID: 11450 MicroEnergy Credits – Microfinance for Clean Energy Product Lines - India	
Reference number of the Programmes of Activity (PoA)	GS 11450	
Version number of the verification and certification report	1.0	
Completion date of the verification and certification report	28/10/2022	
GS ID (s) of VPAs under PoA	VPA Ref. no.	Title
	GS 11476	MicroEnergy Credits PoA – CPA 04
	GS 11505	MicroEnergy Credits PoA – CPA 06
	GS 11477	MicroEnergy Credits PoA – CPA 07
	GS 11478	MicroEnergy Credits PoA – CPA 08
	GS 11481	MicroEnergy Credits PoA – CPA 11
	GS 11483	MicroEnergy Credits PoA – CPA 13
	GS 11451	MicroEnergy Credits PoA – CPA 17
	GS 11486	MicroEnergy Credits PoA – CPA 18
Version number of the monitoring report to which this report applies	2.0	
Completion date of the monitoring report to which this report applies	25/10/2022	
Monitoring period no. and duration	1 st VPA 04 - 01/01/2021 to 31/12/2021 VPA 05 ¹ - 27/06/2020 to 31/12/2021 VPA 07 - 01/01/2021 to 31/12/2021 VPA 08 - 01/01/2021 to 31/12/2021 VPA 11 - 27/06/2020 to 31/12/2021 VPA 13 - 27/06/2020 to 31/12/2021 VPA 17 - 01/01/2021 to 31/12/2021	

¹ During CDM registration, there was an error in the name of VPA. GS ID 11505 is title MicroEnergy Credits PoA-CPA6, however it is actually VPA5. Hence, this VPA is being referred to as VPA5 in entire document.

				VPA 18 - 01/01/2021 to 31/12/2021
Project Representative				Micro Energy Credits Corporation Private Limited
Host Party				India
Applied methodologies and standardized baselines				<p>AMS-III.AR "Substituting fossil fuel based lighting with LED/CFL lighting systems" Version 07</p> <p>AMS-I.A "Electricity generation by the user" version 14.</p> <p>Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 03.1.</p>
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
Product Requirements applied				<input checked="" type="checkbox"/> GHG Emissions Reduction & Sequestration <input type="checkbox"/> Renewable Energy Label <input type="checkbox"/> N/A
Estimated amount of annual average GHG emission reductions				<p>ICS:</p> <p>VPA04 - 44,184</p> <p>VPA05 - 50,964</p> <p>VPA07 - 44,142</p> <p>VPA08 - 38,573</p> <p>VPA11 - 34,040</p> <p>VPA13 - 93,988</p> <p>VPA17 - 68,813</p> <p>VPA18 - 66,392</p> <p>SLS:</p> <p>VPA04 - 436</p> <p>VPA05 - 17,482</p> <p>VPA07 - 8,709</p> <p>VPA08 - 2,599</p> <p>VPA11 - 25,433</p> <p>VPA13 - 58,798</p> <p>VPA17 - 0</p> <p>VPA18 - 0</p>
Sustainable Development Goals Targeted	SDG Impact	Total amount of certified SDG impact (as per approved methodology) achieved in this monitoring period	Units/Product:	

		Estimated	Achieved	
SDG 13: Climate Action	Number of VER's (ICS)	VPA04 – 57,338 VPA05 – 64,024 VPA07 – 82,712 VPA08 – 68,393 VPA11 – 46,006 VPA13 – 117,409 VPA17 – 68,663 VPA18 – 67,246	VPA04 – 44,184 VPA05 – 50,964 VPA07 – 44,142 VPA08 – 38,573 VPA11 – 34,040 VPA13 – 93,988 VPA17 – 68,813 VPA18 – 66,392	tCO ₂ e VERs
	Number of VER's (SLS)	VPA04 – 5,183 VPA05 – 7,932 VPA07 – 11,677 VPA08 – 3,648 VPA11 – 22,318 VPA13 – 10,37,016 VPA17 – 56,481 VPA18 – 42,896	VPA04 – 436 VPA05 – 17,482 VPA07 – 8,709 VPA08 – 2,599 VPA11 – 25,433 VPA13 – 58,798 VPA17 – 0 VPA18 – 0	
SDG 1: No Poverty	Number of households with clean energy products i.e., ICS	VPA04 – 29,937 VPA05 – 19,963 VPA07 – 25,646 VPA08 – 23,337 VPA11 – 14,220 VPA13 – 27,000 VPA17 – 26,921 VPA18 – 26,632	VPA04 – 29,937 VPA05 – 19,963 VPA07 – 28,495 VPA08 – 23,337 VPA11 – 14,220 VPA13 – 27,000 VPA17 – 26,921 VPA18 – 26,080	Number of ICS
	Number of households with clean energy products i.e., SLS	VPA04 – 56,338 VPA05 – 81,045 VPA07 – 126,920 VPA08 – 35,349 VPA11 – 24,258 VPA13 – 155,748 VPA17 – 158,000 VPA18 – 1,200,000	VPA04 – 19,794 VPA05 – 81,045 VPA07 – 46,822 VPA08 – 11,671 VPA11 – 242,588	Number of SLS

			VPA13 – 138,762 VPA17 – 0 VPA18 – 0	
SDG 3: Good Health and Well Being	Percentage of users reporting reduction in smoke/PM after shifting to ICS in project	VPA04 – 100 % VPA05 – 100 % VPA07 – 100 % VPA08 – 100 % VPA11 – 100 % VPA13 – 100 % VPA17 – 100 % VPA18 – 100 %	VPA04 – 64 % VPA05 – 62 % VPA07 – 66 % VPA08 – 68 % VPA11 – 64 % VPA13 – 73 % VPA17 – 86 % VPA18 – 83 %	Percentage
SDG 5: Gender Equality	Percentage of users reporting time saving due to reduction in collected fuel consumption/cooking time/boiling water	VPA04 – 100 % VPA05 – 100 % VPA07 – 100 % VPA08 – 100 % VPA11 – 100 % VPA13 – 100 % VPA17 – 100 % VPA18 – 100 %	VPA04 – 64 % VPA05 – 62 % VPA07 – 66 % VPA08 – 68 % VPA11 – 64 % VPA13 – 73 % VPA17 – 86 % VPA18 – 83 %	Percentage
SDG 7: Affordable and Clean Energy	Number of beneficiaries (ICS)	VPA04 – 26,944 VPA05 – 19,963 VPA07 – 25,646 VPA08 – 23,337 VPA11 – 12,798 VPA13 – 24,300 VPA17 – 24,228 VPA18 – 26,632	VPA04 – 17,127 VPA05 – 66,137 VPA07 – 35,522 VPA08 – 14,228 VPA11 – 9,005 VPA13 – 19,809 VPA17 – 23,152 VPA18 – 21,648	Number of ICS
	Number of beneficiaries (SLS)	VPA04 – 56,338 VPA05 – 86,220 VPA07 – 126,920 VPA08 – 35,349 VPA11 – 24,258 VPA13 – 155,748	VPA04 – 14,375 VPA05 – 66,137 VPA07 –	Number of SLS

		VPA17 – 158,000 VPA18 – 1,200,000	17,036 VPA08 – 9,421 VPA11 – 183,085 VPA13 – 132,324 VPA17 – 0 VPA18 – 0	
SDG 8: Decent Work and Economic Growth	Total number of jobs created	VPA04 – 20 Jobs VPA05 – 20 Jobs VPA07 – 20 Jobs VPA08 – 20 Jobs VPA11 – 20 Jobs VPA13 – 20 Jobs VPA17 – 20 Jobs VPA18 – 20 Jobs	VPA04 – 30 Jobs VPA05 – 93 Jobs VPA07 – 60 Jobs VPA08 – 30 Jobs VPA11 – 48 Jobs VPA13 – 75 Jobs VPA17 – 30 Jobs VPA18 – 30 Jobs	Number of Jobs
Name and UNFCCC reference number of the VVB	Earthood Services Private Limited E-0066			
Name, position and signature of the approver of the verification report	 Managing Director Dr. Kaviraj Singh			

SECTION A. Executive summary

The GS programme of activity "MicroEnergy Credits – Microfinance for Clean Energy Product Lines - India" (PoA GS 11450) aims to replacement of fossil fuel consumption and the resultant GHG emission with a clear and sustainable technology which will lead to reduced GHG emissions. CME archives this through dissemination of improved cookstove (ICS), Solar lighting systems (SLS) and Water Purification System (WPS) in households/facilities of rural areas in various states of India. The PoA is using carbon finance to support local partners engaged in different activities like production, distribution, and maintenance of various product technologies like ICS, SLS and WPS. The VPAs main target is on reduction of greenhouse gas emissions from the burning of non-renewable woody biomass and/or charcoal for cooking and boiling of water for drinking purpose. Improved Cookstoves (ICS) improve heat transfer efficiency as compared to the baseline conventional there stone fired stoves, and thereby reducing GHG emissions, the water purification systems also reduce the dependency of boiling water using non-renewable woody biomass, thereby reducing the GHG emissions from the burning of non-renewable woody biomass and/or charcoal for treating the water, and solar lighting systems results in fulfilment of lighting needs through a renewable source (solar energy), thus replacing the baseline scenario with the project activity will lead to reduction in GHG emissions and fulfilling the requirements of the applied methodologies AMS-I. A "Electricity generation by the user" version 14/10/, AMS-III.AR "Substituting fossil fuel-based lighting with LED/CFL lighting systems" version 07/11/ and TPDDTEC Version 3.1/09/ respectively.

The VPA's are being submitted to GS4GG for Verification are as follows:

Parameter	Validated information
GS ID of the VPAs to be included	GS11476 (VPA 04), GS11505 (VPA 05), GS11477 (VPA 07), GS11478 (VPA 08), GS11481 (VPA 11), GS11483 (VPA 13), GS11451 (VPA 17), and GS11486 (VPA 18)
Title of the VPAs	<ul style="list-style-type: none"> • MicroEnergy Credits PoA – CPA 04 • MicroEnergy Credits PoA – CPA 06 • MicroEnergy Credits PoA – CPA 07 • MicroEnergy Credits PoA – CPA 08 • MicroEnergy Credits PoA – CPA 11 • MicroEnergy Credits PoA – CPA 13 • MicroEnergy Credits PoA – CPA 17 • MicroEnergy Credits – Microfinance for Clean Energy Product Lines – India – MicroEnergy Credits PoA – CPA 18
Methodology applied	<ul style="list-style-type: none"> • AMS-I. A "Electricity generation by the user" version 14. • AMS-III.AR "Substituting fossil fuel-based lighting with LED/CFL lighting systems" version 07 • Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 03.1.
Crediting period	5 years, Renewable twice, total 15 years of crediting period.

The VPAs aim at dissemination of improved cookstove and solar lighting system in various states of India /02/ and is being implemented by MicroEnergy Credits Corporation Private Limited's (PO) and coordinated by MicroEnergy Credits Corporation Private Limited (MEC). The VPA's aims at GHG emission reductions through displacement of fossil fuel use with improved cookstove and solar lighting systems (ICS and SLS) to meet the thermal and electric demands of facility/household. The households in rural areas of India traditionally use fossil fuels which

includes charcoal, kerosene, LPG, diesel, wood, and coal intensive grid for fulfilling their energy demands. The baseline scenario under the VPA's is the replacement of traditional three stone fired cookstove with the improved cookstove thereby reducing the amount of fuelwood used for cooking purposes in the baseline. Also, the distribution of solar lighting systems replaces the kerosene-based lamps in households, which would have resulted in GHG emissions due to burning of kerosene.

The PoA has been registered under GS4GG (GSID 11450). The CME of the PoA is Micro Energy Credits Corporation Private Limited and with the help of local partners & the VPAs Implementer Shri Kshetra Dharmasthala Rural Development Project (SKDRDP), Evangelical Social Action Forum (ESAF), Sarala Development and Microfinance Private Limited, Muthoot Microfin Limited (MML), Canara Bank, Arohan, Greenway appliances (CGI), Simpa Networks and Bandhan Creation Pvt. Ltd.

The Monitoring period covered under this verification is 01/01/2021 – 31/12/2021 (inclusive of both the dates) for the VPA 04, 07, 08, 17 & VPA 18. 27/06/2020 – 31/12/2021 (inclusive of both the dates) for the VPA 05, 11 and VPA 13. All the VPAs i.e., GS11476 (VPA 04), GS11505 (VPA 05), GS11477 (VPA 07), GS11478 (VPA 08), GS11481 (VPA 11), GS11483 (VPA 13), GS11451 (VPA 17), and GS11486 (VPA 18)/02/ envisage an archived annual GHG emission reduction and other SDG impacts over the crediting period as given in the table below.

Sustainable Development Goals Targeted			SDG Impact	Amount Achieved	Units/ Products
13 Climate (mandatory)	Action	Number of VERs (ICS)		VPA04 – 44,184	tCO ₂ e VERs
				VPA05 – 50,964	
				VPA07 – 44,142	
				VPA08 – 38,573	
				VPA11 – 34,040	
				VPA13 – 93,988	
				VPA17 – 68,813	
13 Climate (mandatory)	Action	Number of VERs (SLS)		VPA18 – 66,392	tCO ₂ e VERs
				VPA04 – 436	
				VPA05 – 17,482	
				VPA07 – 8,709	
				VPA08 – 2,599	
				VPA11 – 25,433	
				VPA13 – 58,798	
1 End poverty in all its forms everywhere		Number of households with clean energy products		VPA17 – 0	Number ICS
				VPA18 – 0	
				VPA04 – 29,937	
				VPA05 – 19,963	
				VPA07 – 28,495	
				VPA08 – 23,337	
				VPA11 – 14,220	
1 End poverty in all its forms everywhere		Number of households with clean energy products i.e. SLS		VPA13 – 27,000	Number SLS
				VPA17 – 26,921	
				VPA18 – 26,080	
				VPA04 – 19,794	
				VPA05 – 81,045	
				VPA07 – 46,822	
				VPA08 – 11,671	
				VPA11 – 242,588	
				VPA13 – 138,762	

			VPA17 – 0	
			VPA18 – 0	
3 Good Health and Wellbeing	% Households confirming less smoke with the use of improved cookstove		VPA04 – 64 %	%
			VPA05 – 62 %	
			VPA07 – 66 %	
			VPA08 – 68 %	
			VPA11 – 64 %	
			VPA13 – 73 %	
			VPA17 – 86 %	
			VPA18 – 83 %	
5 Gender Equality	% Household reporting time saving on domestic work by women in collecting fuel or cooking on traditional stove		VPA04 – 64 %	%
			VPA05 – 62 %	
			VPA07 – 66 %	
			VPA08 – 68 %	
			VPA11 – 64 %	
			VPA13 – 73 %	
			VPA17 – 86 %	
			VPA18 – 83 %	
7 Affordable and Clean Energy	Number of beneficiaries (ICS)		VPA04 – 17,127	Number
			VPA05 – 66,137	
			VPA07 – 35,522	
			VPA08 – 14,228	
			VPA11 – 9,005	
			VPA13 – 19,809	
			VPA17 – 23,152	
			VPA18 – 21,648	
7 Affordable and Clean Energy	Number of beneficiaries (SLS)		VPA04 – 14,375	Number
			VPA05 – 66,137	
			VPA07 – 17,036	
			VPA08 – 9,421	
			VPA11 – 183,085	
			VPA13 – 132,324	
			VPA17 – 0	
			VPA18 – 0	
8 Decent Work and Economic Growth	Quantitative Employment and income generation		VPA04 – 30 Jobs	Number
			VPA05 – 93 Jobs	
			VPA07 – 60 Jobs	
			VPA08 – 30 Jobs	
			VPA11 – 48 Jobs	
			VPA13 – 75 Jobs	
			VPA17 – 30 Jobs	
			VPA18 – 30 Jobs	

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/ & VPA-DDs/02/ for VPA04, 05, 07, 08, 11, 13, 17 & VPA 18 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 AMS-I.A "Electricity generation by the user, version 14.0/10/
- (ii) The approved methodology AMS-III.AR "Substituting fossil fuel based lighting with LED/CFL lighting systems" version 07/11/.
- (iii) The approved methodology TPDDTEC – "Technologies and Practices to Displace Decentralized Thermal Energy Consumptions, Version 3.1 /09/
- (iv) The registered PoA-DD/01/ & registered VPA-DDs/02/ and monitoring plan/02/
- (v) UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accords
- (vi) GS4GG requirements
- (vii) The CDM Validation and Verification Standard (VVS) version 3.0/24/ and The CDM Project Standard (PS) version 3.0/23/
- (viii) Relevant decisions, guidance, and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the project activity's reported emission reductions
- (ix) GS review of validation of PoA and VPAs

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

The review of the monitoring report, supporting documentation and subsequent follow up actions have provided ESPL with sufficient evidence to determine the fulfilment of stated criteria. Earthood is of the opinion that the PoA "MicroEnergy Credits – Microfinance for Clean Energy Product Lines - India" (GS ID: 11450) meets all the GS requirements and has correctly applied the GS approved methodologies AMS-I. A "Electricity generation by the user" version 14/10/, AMS-III.AR "Substituting fossil fuel based lighting with LED/CFL lighting systems" version 07/11/ and TPDDTEC Version 3.1/09/ respectively.

The GHG emission reductions were calculated correctly based on the approved methodologies AMS-I.A "Electricity generation by the user" version 14/10/, AMS-III.AR "Substituting fossil fuel based lighting with LED/CFL lighting systems" version 07/11/, TPDDTEC Version 3.1/09/ and the monitoring plan contained in the registered PoA-DD/01/ and VPA-DDs /02/.

Earthood Services Private Limited can certify that the emission reductions achieved in the monitoring period 01/01/2021 – 31/12/2021 for the (VPA 04, 07, 08, 17 & VPA 18) and 27/06/2020 – 31/12/2021 for the (VPA 05, 11 and VPA 13) by GS PoA "MicroEnergy Credits – Microfinance for Clean Energy Product Lines - India" (GSID: 11450) amount to 44,620 tCO₂e for VPA 04, 68,446 tCO₂e for VPA 05, 52,851 tCO₂e for VPA 07, 41,172 tCO₂e for VPA 08, 59,473 tCO₂e for VPA 11, 152,786 tCO₂e for VPA 13, 68,813 tCO₂e for VPA 17 and 66,392 tCO₂e for VPA 18 . Therefore, this is being submitted for request for issuance, as per GS4GG and UNFCCC procedures.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection*	Interview(s)	Verification findings
1.	Team Leader	IR	Guleria	Shifali	Central Office	Y	Y	Y	Y
2.	Methodological Expert	IR	Guleria	Shifali	Central Office	Y	Y	Y	Y
3.	Technical Expert (TA 1.2, 3.1)	IR	Guleria	Shifali	Central Office	Y	Y	Y	Y
4.	Local Expert	EI	Guleria	Shifali	Central Office	Y	Y	Y	Y
5.	Trainee (Verifier)	IR	Vashisht	Sushant	Central Office	Y	Y	Y	Y
6.	Trainee (Verifier)	IR	Panda	Satya	Central office	N	Y	Y	N
7.	Trainee (Verifier)	IR	Panicker	Vishnu	Central office	N	Y	Y	N
8.	Trainee (Verifier)	IR	Patwal	Charu	Central office	N	Y	Y	N
9.	Trainee (Verifier)	IR	Kalita	Jahnabi	Central office	N	Y	Y	N

*On – site interviews have been conducted for the current validation and the same has been discussed in detail in section D.2 of the report.

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer	IR	Garg	Shreya	Central Office

	and TA expert (TA 1.2) to TR				
2.	Approver	IR	Singh	Kaviraj	Central Office

SECTION C. Application of materiality in conducting the verification

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Erroneous transfer of information from documented records (sales receipt, carbon transfer form etc.) to credit tracker platform	Low	POs contracted by CME enters 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 CEPs (especially for solar CEPs)	Low	The technical specifications are provided by the manufacturer.	Technical specifications of each CEP model are checked against the document issued by the manufacturer.
3.	Observational error by monitoring survey staff of CME/CPA implementer while recording the responses of users in relation to survey parameters	Low	Other than monitoring surveys, the CEP usage status-check surveys are also conducted regularly for distributed CEP. Therefore, 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	All calculations and referencing will be checked by verification team with respect to applicable

			results, therefore occurrence of error is less likely. However, referencing errors within the ER sheet may occur.	requirements under various documents viz., methodology, PoA DD, CPA DD etc.
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C.2. Consideration of materiality in conducting the verification

In accordance with CDM VVS for PoAs, Version 03.0/24/ the prescribed thresholds for materiality for CDM PoAs are as under;

The applicable materiality threshold is 5.0% as PoA comprises Small-scale VPAs

Particulars / Monitoring Report	MR Version (Initial)	MR Version (Revised/Final)
Emission Reductions Achieved (tCO₂e) in this monitoring period	VPA 05 – 70,363 VPA 08 – 41,172 VPA 11 – 27,299	VPA 05 – 68,446 VPA 08 – 41,172 VPA 11 – 59,473
Applicable Threshold (%) as per CDM VVS for PoAs Version 03.0	5.0%	5.0%

The applicable materiality threshold is 2.0% as PoA comprises Large-scale VPAs

Particulars / Monitoring Report	MR Version (Initial)	MR Version (Revised/Final)
Emission Reductions Achieved (tCO₂e) in this monitoring period	VPA 04 – 44,620 VPA 07 – 52,851 VPA 13 - - VPA 17 – 68,813 VPA 18 – 66,213	VPA 04 – 44,620 VPA 07 – 52,851 VPA 13 – 152,786 VPA 17 – 68,813 VPA 18 – 66,392
Applicable Threshold (%) as per CDM VVS for PoAs Version 03.0	2.0%	2.0%

During the assessment all findings were closed and from the sample selected for verification, no systemic or systematic material errors were identified which would have an impact on total emission reductions from the entire population.

SECTION D. Means of verification

D.1. Desk/document review

The verification of the information of the PoA was performed through the document review including review of monitoring report /41/ version 2.0 dated 25/10/2022. Additionally, cross checks were performed for information provided in the monitoring report using other source of information, the verification team's sectoral or local expertise and, if necessary, independent background investigations.

The desk review involves:

- A review of the data and information presented to verify their completeness.
- A review of the monitoring plan, the monitoring methodologies including applicable tool(s) and, where applicable, the applied standardized baseline, paying attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures.
- A review of calculations and assumptions made in determining the GHG data and emission reductions.

- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

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

D.2. On-site inspection

Duration of on-site inspection: 22/08/2022 – 20/09/2022				
No.	Activity performed on-site	Site location	Date	Team member
1.	Physical site visit: Households visited (implementation of PoA)	Karnataka	22/08/2022 – 20/09/2022	Shifali Guleria, Satya Ranjan panda, Sushant Vashishta, Charu Patwal, Vishnu Panicker, Jahnabi Kalita
2.	Review of information flows for generating, aggregating and reporting the monitoring parameters	Karnataka	22/08/2022 – 20/09/2022	
3.	Cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;	Karnataka	22/08/2022 – 20/09/2022	
4.	A check of the monitoring equipment including calibration performance and observations of monitoring practices against the applicable requirements	Karnataka	22/08/2022 – 20/09/2022	
5.	Identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters	Karnataka	22/08/2022 – 20/09/2022	

D.3. Interviews

D.3.1. Interviews with CME and VPA Implementers

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1	Swammy	Kumar	MEC India	22/08/2022 – 20/09/2022	VPA DD description, Monitoring parameters, Project boundary, Ex-ante and Ex-post parameters	Shifali Guleria and Sushant Vashisht
2	Sadashiva n	Ashok	MEC India		VPA DD description, Monitoring parameters, Project boundary, Ex-ante and Ex-post parameters	Shifali Guleria and Sushant Vashisht
3	Mehta	Parikshit	MEC India		VPA DD description, Monitoring	Shifali Guleria and Sushant Vashisht

					parameters, Project boundary, Ex-ante and Ex- post parameters	
4	Kaushik	Himagnka	MEC India		VPA DD description, Monitoring parameters, Project boundary, Ex-ante and Ex- post parameters	Shifali Guleria and Sushant Vashisht
5	Parmar	Dilkhush	MEC India		VPA DD description, Monitoring parameters, Project boundary, Ex-ante and Ex- post parameters	Shifali Guleria and Sushant Vashisht
ICS End- User for VPA 04						
1	-	Hanumam ma	ICS user	End	24/08/20 22	VVB Survey Project Vishnu Panicker
2	-	Shakunthal a	ICS user	End	24/08/20 22	VVB Survey Project Vishnu Panicker
3	-	Channamm a	ICS user	End	24/08/20 22	VVB Survey Project Vishnu Panicker
4	-	Kavitha	ICS user	End	24/08/20 22	VVB Survey Project Vishnu Panicker
5	-	Kotramma	ICS user	End	24/08/20 22	VVB Survey Project Vishnu Panicker
6	-	Chanabasa mma	ICS user	End	24/08/20 22	VVB Survey Project Vishnu Panicker
7	-	Lilavathi	ICS user	End	24/08/20 22	VVB Survey Project Vishnu Panicker
8	Venktesha	G	ICS user	End	24/08/20 22	VVB Survey Project Vishnu Panicker
9	-	Ramesha	ICS user	End	24/08/20 22	VVB Survey Project Vishnu Panicker
10	-	Chandram ma	ICS user	End	24/08/20 22	VVB Survey Project Vishnu Panicker
11	-	Ranjitha	ICS user	End	24/08/20 22	VVB Survey Project Vishnu Panicker
ICS End- User for VPA 05						
1	-	Shankara	ICS user	End	19/09/20 22	VVB Survey Project Satya Ranjan Panda
2	-	Shivanna	ICS user	End	19/09/20 22	VVB Survey Project Satya Ranjan Panda
3	-	Murthy	ICS user	End	19/09/20 22	VVB Survey Project Satya Ranjan Panda
4	-	Huvamma	ICS user	End	19/09/20 22	VVB Survey Project Satya Ranjan Panda
5	-	Farjana Baanu	ICS user	End	19/09/20 22	VVB Survey Project Satya Ranjan Panda
6	-	Asha	ICS user	End	19/09/20 22	VVB Survey Project Satya Ranjan Panda
7	-	Kusume	ICS user	End	19/09/20 22	VVB Survey Project Satya Ranjan Panda
8	-	Rajeshwari	ICS user	End	19/09/20	VVB Survey Project Satya Ranjan

			user	22	Survey	Panda
9	-	Gangamma	ICS user	End 19/09/2022	VVB Survey Project	Satya Ranjan Panda
10	-	Lakshmi	ICS user	End 19/09/2022	VVB Survey Project	Satya Ranjan Panda
11	-	Parvatham ma	ICS user	End 19/09/2022	VVB Survey Project	Satya Ranjan Panda
ICS End- User for VPA 07						
1	-	Leelavathi	ICS user	End 26/08/2022	VVB Survey Project	Sushant Vashisht
2	-	Muttamma	ICS user	End 26/08/2022	VVB Survey Project	Sushant Vashisht
3	-	Yashoda	ICS user	End 26/08/2022	VVB Survey Project	Sushant Vashisht
4	-	Jyothi	ICS user	End 26/08/2022	VVB Survey Project	Sushant Vashisht
5	-	Susheelam ma	ICS user	End 26/08/2022	VVB Survey Project	Sushant Vashisht
6	-	Jayamma	ICS user	End 26/08/2022	VVB Survey Project	Sushant Vashisht
7	-	Eramma	ICS user	End 26/08/2022	VVB Survey Project	Sushant Vashisht
8	-	Kumari	ICS user	End 26/08/2022	VVB Survey Project	Sushant Vashisht
9	-	Komalakshi	ICS user	End 26/08/2022	VVB Survey Project	Sushant Vashisht
10	-	Savitha	ICS user	End 26/08/2022	VVB Survey Project	Sushant Vashisht
11	-	Jayamma	ICS user	End 26/08/2022	VVB Survey Project	Sushant Vashisht
ICS End- User for VPA 08						
1	-	Shashikala	ICS user	End 25/08/2022	VVB Survey Project	Sushant Vashisht
2	-	Bebi	ICS user	End 25/08/2022	VVB Survey Project	Sushant Vashisht
3	-	Poornima	ICS user	End 25/08/2022	VVB Survey Project	Sushant Vashisht
4	-	Lakshmam ma	ICS user	End 25/08/2022	VVB Survey Project	Sushant Vashisht
5	H.P	Prema	ICS user	End 25/08/2022	VVB Survey Project	Sushant Vashisht
6	-	Sakkamma	ICS user	End 25/08/2022	VVB Survey Project	Sushant Vashisht
7	A	Saritha	ICS user	End 25/08/2022	VVB Survey Project	Sushant Vashisht
8	-	Sharada	ICS user	End 25/08/2022	VVB Survey Project	Sushant Vashisht
9	-	Santhamm a	ICS user	End 25/08/2022	VVB Survey Project	Sushant Vashisht
10	-	Annakili	ICS user	End 25/08/2022	VVB Survey Project	Sushant Vashisht
11	-	Pachamma	ICS user	End 25/08/2022	VVB Survey Project	Sushant Vashisht
ICS End- User for VPA 11						
1	Panchesar	Beby Babudas	ICS user	End 06/09/2022	VVB Survey Project	Charu Patwal
2	Ramteke	Merra	ICS user	End 06/09/2022	VVB Survey Project	Charu Patwal

			user	22	Survey		
3	Kathote	Puniya Kanhaiya	ICS user	End 06/09/2022	VVB Survey	Project	Charu Patwal
4	Sonavane	Chhaya Raju	ICS user	End 06/09/2022	VVB Survey	Project	Charu Patwal
5	Tekam	Shalu Waman	ICS user	End 06/09/2022	VVB Survey	Project	Charu Patwal
6	Varati	Vidhatai Sudhakar	ICS user	End 06/09/2022	VVB Survey	Project	Charu Patwal
7	Yadav	Arti Devchand	ICS user	End 06/09/2022	VVB Survey	Project	Charu Patwal
8	Varathi	Mayabai Murlidhar	ICS user	End 06/09/2022	VVB Survey	Project	Charu Patwal
9	Yadav	Rekha Ganesh	ICS user	End 06/09/2022	VVB Survey	Project	Charu Patwal
10	Vellor	Anita Ravindra	ICS user	End 06/09/2022	VVB Survey	Project	Charu Patwal
11	Yadav	Kirti Santosh	ICS user	End 06/09/2022	VVB Survey	Project	Charu Patwal
ICS End- User for VPA 13							
1	-	Lalithamma	ICS user	End 26/08/2022	VVB Survey	Project	Vishnu Panicker
2	-	Jayamma	ICS user	End 26/08/2022	VVB Survey	Project	Vishnu Panicker
3	-	Rathnamma	ICS user	End 26/08/2022	VVB Survey	Project	Vishnu Panicker
4	-	Lalithamma	ICS user	End 26/08/2022	VVB Survey	Project	Vishnu Panicker
5	-	Lakshmidamma	ICS user	End 26/08/2022	VVB Survey	Project	Vishnu Panicker
6	-	Drakshayani	ICS user	End 26/08/2022	VVB Survey	Project	Vishnu Panicker
7	-	Gopamma	ICS user	End 26/08/2022	VVB Survey	Project	Vishnu Panicker
8	-	Mangalamma	ICS user	End 26/08/2022	VVB Survey	Project	Vishnu Panicker
9	Devamma	Lakshmi	ICS user	End 26/08/2022	VVB Survey	Project	Vishnu Panicker
10	-	Gowramma	ICS user	End 26/08/2022	VVB Survey	Project	Vishnu Panicker
11	-	Bhagyamma	ICS user	End 26/08/2022	VVB Survey	Project	Vishnu Panicker
ICS End- User for VPA 17							
1	-	Borakka	ICS user	End 25/08/2022	VVB Survey	Project	Vishnu Panicker
2	-	Thippamma	ICS user	End 25/08/2022	VVB Survey	Project	Vishnu Panicker
3	-	Saroja	ICS user	End 25/08/2022	VVB Survey	Project	Vishnu Panicker
4	-	Mahalakshmi	ICS user	End 25/08/2022	VVB Survey	Project	Vishnu Panicker
5	-	Bhagyamma	ICS user	End 25/08/2022	VVB Survey	Project	Vishnu Panicker
6	-	Hanumakka	ICS user	End 25/08/2022	VVB Survey	Project	Vishnu Panicker
7	-	Lakshmidevi	ICS user	End 25/08/2022	VVB Survey	Project	Vishnu Panicker

8	-	Malashree	ICS user	End	25/08/2022	VVB Survey	Project	Vishnu Panicker
9	-	Sharadamma	ICS user	End	25/08/2022	VVB Survey	Project	Vishnu Panicker
10	-	Dhanalakshmi	ICS user	End	25/08/2022	VVB Survey	Project	Vishnu Panicker
11	-	Renukamma	ICS user	End	25/08/2022	VVB Survey	Project	Vishnu Panicker
ICS End- User for VPA 18								
1	-	Shanthamma	ICS user	End	22/08/2022	VVB Survey	Project	Shifali Guleria
2	-	Shashikala	ICS user	End	22/08/2022	VVB Survey	Project	Shifali Guleria
3	-	Roopa	ICS user	End	22/08/2022	VVB Survey	Project	Shifali Guleria
4	K	Kavita	ICS user	End	22/08/2022	VVB Survey	Project	Shifali Guleria
5		Shoba	ICS user	End	22/08/2022	VVB Survey	Project	Shifali Guleria
6	R	Nagveni	ICS user	End	22/08/2022	VVB Survey	Project	Shifali Guleria
7	-	Jyothi	ICS user	End	22/08/2022	VVB Survey	Project	Shifali Guleria
8	-	Narayannamma	ICS user	End	22/08/2022	VVB Survey	Project	Shifali Guleria
9	-	Venkattamma	ICS user	End	22/08/2022	VVB Survey	Project	Shifali Guleria
10	-	Mangamma	ICS user	End	22/08/2022	VVB Survey	Project	Shifali Guleria
11	-	Jyothi	ICS user	End	22/08/2022	VVB Survey	Project	Shifali Guleria
SLS End- User for VPA 04								
1	-	Getha	SLS User	End	23/08/2022	VVB Survey	Project	Vishnu Panicker
2	-	Umabayi	SLS User	End	23/08/2022	VVB Survey	Project	Vishnu Panicker
3	-	Gouribayi	SLS User	End	23/08/2022	VVB Survey	Project	Vishnu Panicker
4	-	Shanthi	SLS User	End	23/08/2022	VVB Survey	Project	Vishnu Panicker
5	-	Fathima	SLS User	End	23/08/2022	VVB Survey	Project	Vishnu Panicker
6	-	Vasanth	SLS User	End	23/08/2022	VVB Survey	Project	Vishnu Panicker
7	-	Lakshmi	SLS User	End	23/08/2022	VVB Survey	Project	Vishnu Panicker
8	-	Manjula	SLS User	End	23/08/2022	VVB Survey	Project	Vishnu Panicker
9	G U	Mamatha	SLS User	End	23/08/2022	VVB Survey	Project	Vishnu Panicker
10	R	Shwetha	SLS User	End	23/08/2022	VVB Survey	Project	Vishnu Panicker
11	S	Savitha	SLS User	End	23/08/2022	VVB Survey	Project	Vishnu Panicker
SLS End- User for VPA 05								
1	M	Zeena	SLS User	End	20/09/2022	VVB Survey	Project	Sushant Vashisht

2	-	Thahira	SLS User	End	20/09/2022	VVB Survey	Project	Sushant Vashisht
3	J	Aneesha	SLS User	End	20/09/2022	VVB Survey	Project	Sushant Vashisht
4	-	Mini	SLS User	End	20/09/2022	VVB Survey	Project	Sushant Vashisht
5	Raj	Divya	SLS User	End	20/09/2022	VVB Survey	Project	Sushant Vashisht
6	Amma	Komala	SLS User	End	20/09/2022	VVB Survey	Project	Sushant Vashisht
7	G	Jaya	SLS User	End	20/09/2022	VVB Survey	Project	Sushant Vashisht
8	-	Sheeja	SLS User	End	20/09/2022	VVB Survey	Project	Sushant Vashisht
9	K	Rejani	SLS User	End	20/09/2022	VVB Survey	Project	Sushant Vashisht
10	-	Suneetha	SLS User	End	20/09/2022	VVB Survey	Project	Sushant Vashisht
11	-	Shareena	SLS User	End	20/09/2022	VVB Survey	Project	Sushant Vashisht
SLS End- User for VPA 07								
1	-	Kamalamm a	SLS User	End	22/08/2022	VVB Survey	Project	Vishnu Panicker
2	-	Shakaram ma	SLS User	End	22/08/2022	VVB Survey	Project	Vishnu Panicker
3	-	Annapurna	SLS User	End	22/08/2022	VVB Survey	Project	Vishnu Panicker
4	-	Kalavati	SLS User	End	22/08/2022	VVB Survey	Project	Vishnu Panicker
5	-	Subhadram ma	SLS User	End	22/08/2022	VVB Survey	Project	Vishnu Panicker
6	-	Shobha	SLS User	End	22/08/2022	VVB Survey	Project	Vishnu Panicker
7	-	Sushila	SLS User	End	22/08/2022	VVB Survey	Project	Vishnu Panicker
8	-	Renuka	SLS User	End	22/08/2022	VVB Survey	Project	Vishnu Panicker
9	-	Kavitha	SLS User	End	22/08/2022	VVB Survey	Project	Vishnu Panicker
10	-	Hunkibal	SLS User	End	22/08/2022	VVB Survey	Project	Vishnu Panicker
11	-	Sathyavati	SLS User	End	22/08/2022	VVB Survey	Project	Vishnu Panicker
SLS End- User for VPA 08								
1	Pushpalat ha	A H	SLS User	End	24/08/2022	VVB Survey	Project	Sushant Vashisht
2	-	Rathanam ma	SLS User	End	24/08/2022	VVB Survey	Project	Sushant Vashisht
3	-	Shoba	SLS User	End	24/08/2022	VVB Survey	Project	Sushant Vashisht
4	-	Veena	SLS User	End	24/08/2022	VVB Survey	Project	Sushant Vashisht
5	-	Shivamada mma	SLS User	End	24/08/2022	VVB Survey	Project	Sushant Vashisht
6	-	Renuka	SLS User	End	24/08/2022	VVB Survey	Project	Sushant Vashisht
7	-	Tayamma	SLS User	End	24/08/2022	VVB Survey	Project	Sushant

			User	22	Survey	Vashisht
8	-	Savithramma	SLS User	End 24/08/2022	VVB Survey	Project Sushant Vashisht
9	K	Suma	SLS User	End 24/08/2022	VVB Survey	Project Sushant Vashisht
10	-	Parvathi	SLS User	End 24/08/2022	VVB Survey	Project Sushant Vashisht
11	-	Sarojamma	SLS User	End 24/08/2022	VVB Survey	Project Sushant Vashisht
SLS End- User for VPA 11						
1	P	Shobha	SLS User	End 19/09/2022	VVB Survey	Project Sushant Vashisht
2	-	Jayasree	SLS User	End 19/09/2022	VVB Survey	Project Sushant Vashisht
3	-	Geetha	SLS User	End 19/09/2022	VVB Survey	Project Sushant Vashisht
4	Devi	Ambika	SLS User	End 19/09/2022	VVB Survey	Project Sushant Vashisht
5	Panicker	Saramma	SLS User	End 19/09/2022	VVB Survey	Project Sushant Vashisht
6	V	Manju	SLS User	End 19/09/2022	VVB Survey	Project Sushant Vashisht
7	-	Ammini	SLS User	End 19/09/2022	VVB Survey	Project Sushant Vashisht
8	-	Zeenath	SLS User	End 19/09/2022	VVB Survey	Project Sushant Vashisht
9	S	Shaija	SLS User	End 19/09/2022	VVB Survey	Project Sushant Vashisht
10	-	Prameela	SLS User	End 19/09/2022	VVB Survey	Project Sushant Vashisht
11	-	Suja	SLS User	End 19/09/2022	VVB Survey	Project Sushant Vashisht
SLS End- User for VPA 13						
1	Jathi	Puja	SLS User	End 24/08/2022	VVB Survey	Project Jahnabi Kalita
2	Khatun	Asma	SLS User	End 24/08/2022	VVB Survey	Project Jahnabi Kalita
3	Begam	Sakila	SLS User	End 24/08/2022	VVB Survey	Project Jahnabi Kalita
4	Bibi	Ajmira	SLS User	End 24/08/2022	VVB Survey	Project Jahnabi Kalita
5	Begum	Ajmiri	SLS User	End 24/08/2022	VVB Survey	Project Jahnabi Kalita
6	Bibi	Modina	SLS User	End 24/08/2022	VVB Survey	Project Jahnabi Kalita
7	Maity	Mousumi	SLS User	End 24/08/2022	VVB Survey	Project Jahnabi Kalita
8	Bhuniya	Bharti	SLS User	End 24/08/2022	VVB Survey	Project Jahnabi Kalita
9	Begam	Sony	SLS User	End 24/08/2022	VVB Survey	Project Jahnabi Kalita
10	Begum	Abda	SLS User	End 24/08/2022	VVB Survey	Project Jahnabi Kalita
11	Jaiswara	Rajkumari	SLS User	End 24/08/2022	VVB Survey	Project Jahnabi Kalita

Type of questions asked by VVB to VPA Implementers:
Following questions are asked by the end-users for the verification of samples:

No.	Questions asked by Team member for SLS monitoring survey
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.	How many hours do you use the solar lighting system per day
10.	Is device using electricity/energy to operate?
11.	What was the baseline device in use?
12.	Lumen output and wattage
13.	How many lamps did you receive?
14.	How many lamps are operational?
15.	Does the HH include distributed Cookstove and Purifier?
16.	Is your sampled HH also surveyed by PP?

No.	Questions asked by Team member for ICS monitoring survey
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 device using electricity/energy to operate?
10.	Is the baseline stove still in use?
11.	Quantity of wood use in baseline stove?
12.	Is there any smoke reduction after using the project stove?
13.	Are you spending lesser time in collecting wood since using the project device?
14.	Amount of time saved (hrs)

15	Does the HH include distributed Cookstove and Purifier?
16	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 ICS. All the end users also reported that they are aware of the grievance mechanism. No adverse or negative responses were received with regards the usage or convenience of use of stove.

D.4. Sampling approach

VVB's sampling plan:

In order to meet the requirements of Standard for Sampling and surveys for CDM project activities and programmes of activities /26/, 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' /26/:

- 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 11 was required as per Table (Sample size and acceptance number based on AQL, UQL, and producer and consumer risks) in the referred Standard /26/. Accordingly, the acceptance number (c) thus determined for the sample size is 0. A sample size of 11 for each technology of each VPA 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. The audit plan and list of samples thus obtained to be surveyed by assessment team was communicated to CME via email.

The current verification is for GS11476 (VPA 04), GS11505 (VPA 05), GS11477 (VPA 07), GS11478 (VPA 08), GS11481 (VPA 11), GS11483 (VPA 13), GS11451 (VPA 17), and GS11486 (VPA 18). In this monitoring period, following was observed:

GS Ref. VPA	Measure/Technology	Unique CEPs at the end of previous MP (under CDM)	Unique CEPs at the end of current MP	Incremental CEPs distribution?	Fresh/ New Monitoring by CME in the MP?
GS11476	Improved cookstove	29,937	29,937	No	Yes
	Solar Lighting system	19,794	19,794	No	Yes
GS11505	Improved cookstove	30,154*	19,963	No	Yes
	Solar Lighting system	81,045	81,045	No	Yes
GS11477	Improved cookstove	28,495	28,495	No	Yes
	Solar Lighting system	46,822	46,822	No	Yes
GS11478	Improved cookstove	23,337	23,337	No	Yes
	Solar Lighting system	13,138*	11,671	No	Yes

GS11481	Improved cookstove	14,220	14,220	No	Yes
	Solar Lighting system	242,588	242,588	No	Yes
GS11483	Improved cookstove	27,000	27,000	No	Yes
	Solar Lighting system	143,718*	138,762	No	Yes
GS11451	Improved cookstove	26,921	26,921	No	Yes
	Solar Lighting system	0	0	No	Yes
GS11486	Improved cookstove	26,080	26,080	No	Yes
	Solar Lighting system	0	0	No	Yes

*The number of CEPs have reduced due to removal of BoI, Canara Bank and GGI sales from GS11505, GS11478 and GS11483 respectively.

Accordingly, the verification team together has verified 154 samples collectively (11 samples for each technology distributed under each VPA) during the on - site survey and observed that the sampling survey results of the CME for all the CEPs checked were 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 /26/ and Guideline: Sampling and surveys for CDM project activities and programme of activities /27/. In all, the verification team conducted onsite surveys for 154 households.

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

Area of verification findings	No. of CL	No. of CAR	No. of FAR
General	-	-	-
Compliance of the monitoring report with the GS4GG monitoring report form	-	-	-
Remaining forward action requests from validation and/or previous verifications	-	-	-
VPAs considered for verification and covered under this report	-	-	-
Programme of activities	-	-	-
Compliance of the programme implementation with the registered PoA-DD	-	-	-
Implementation and operation of the management system	-	-	-
VPA Implementation	-	-	-
Compliance of the VPA implementation with the included VPA design document	-	-	-
Post-design certification changes	-	-	-
Compliance of the monitoring activities with the registered monitoring plan	-	-	-
Data and parameters fixed ex ante or at renewal of crediting period	-	CAR#03	-
Data and parameters monitored	CL#01, CL#02, CL#03	CAR#04	-
Comparison of monitored parameters with last monitoring period	-	-	-
Implementation of the sampling plan	-	-	-
Assessment of data and calculations of net emission reductions or removals	-	-	-
Calculations of baseline value of each SDG Impact	-	-	-
Calculations of project value of each SDG Impact	-	-	-
Calculations of leakage GHG emissions	-	-	-
Calculations of net benefits for each SDG Impact	-	-	-
Comparison of actual GHG ER value achieved during this monitoring period with estimated value	-	-	-

Safeguarding principles	-	-	-
Stakeholder Inputs and Legal Disputes	-	-	-
Continuous input and grievance mechanism	-	-	-
Internal quality control	-	-	-
Others (editorial/ consistency)	-	CAR#01, CAR#02	-
Total	3	4	-

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the GS4GG monitoring report form

Means of verification	The monitoring report form used is GS4GG Monitoring report template version 1.1 /04/, which is a valid version available at the time of verification. All the sections of the aforesaid form were filled as per the Monitoring report template guide version 1.1 /04/ and all the relevant details were provided in the form.
Findings	No findings were raised.
Conclusion	The monitoring report version 2. /41/ has been found to be completed using the valid version of the monitoring report form. The information provided in the monitoring report has been assessed in accordance with the GS4GG principles & requirements version 1.2/28/ and monitoring report template guide /04/.

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

This is the first verification of VPAs (VPA 04, 05, 07, 08, 11, 13, 17 & 18) under GS. The validation and verification of the VPA is submitted simultaneously for GS design and performance review. Any FAR's raised will be reflected in the next verification.

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

Title and GS reference number of the VPA included in the PoA as of the end of this monitoring period	Is the VPA considered for this verification? (yes/no)	Version of the VPA-DD/ PoA-DD
MicroEnergy Credits PoA – CPA 04	Yes	Version 4.0/ Version 2.1
MicroEnergy Credits PoA – CPA 06	Yes	Version 4.0/ Version 2.1
MicroEnergy Credits PoA – CPA 07	Yes	Version 4.0/ Version 2.1
MicroEnergy Credits PoA – CPA 08	Yes	Version 4.0/ Version 2.1
MicroEnergy Credits PoA – CPA 11	Yes	Version 4.0/ Version 2.1
MicroEnergy Credits PoA – CPA 13	Yes	Version 4.0/ Version 2.1
MicroEnergy Credits PoA – CPA 17	Yes	Version 4.0/ Version 2.1
MicroEnergy Credits PoA – CPA 18	Yes	Version 4.0/ Version 2.1

E.4. Programme of Activities

E.4.1. Compliance of the programme implementation with the registered PoA-DD

Means of verification

The PoA involves the promotion, distribution and sale of improved cook stoves (ICS), Solar lighting systems and water purifiers in India. CME has implemented the VPA's through coordination with the partner organizations (POs) and further with local/channel 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 08 VPAs (VPA 04 - MicroEnergy Credits PoA – CPA 04, VPA 05 -MicroEnergy Credits PoA – CPA 06, VPA 07 – MicroEnergy Credits PoA – CPA 07, VPA 08 - MicroEnergy Credits PoA – CPA 08, VPA 11 - MicroEnergy Credits PoA – CPA 11, VPA 13 - MicroEnergy Credits PoA – CPA 13, VPA 17 - MicroEnergy Credits PoA – CPA 17 and VPA 18 - MicroEnergy Credits PoA – CPA 18) that was put together by CME.

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

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

VPA 04 – GS11476:

Type of CEP	Model	PO/ Implementer
Improved Cookstove	Grameen Greenway Smart Stove (GSSV3)	SKDRDP
Solar Lighting System	There are various models of Solar lighting systems distributed in VPA 04, which were all reviewed and found acceptable under the applied methodology	(SKDRDP) – Sri Kshetra Dharmastala Rural Development Project

VPA 05 – GS11505:

Type of CEP	Model	PO/ Implementer
Improved Cookstove	Grameen Greenway Smart Stove (GSSV3)	SKDRDP
Solar Lighting System	There are various models of Solar lighting systems distributed in VPA 05, , which were all reviewed and found acceptable under the applied methodology	(SKDRDP) – Sri Kshetra Dharmastala Rural Development Project, Muthoot, ESAF, Sarala

VPA 07 – GS11477:

Type of CEP	Model	PO/ Implementer
Improved Cookstove	Grameen Greenway Jumbo Stove (GJS)	SKDRDP, ESAF
Solar Lighting System	There are various models of Solar lighting systems distributed in VPA 07, which were all reviewed and found	(SKDRDP) – Sri Kshetra Dharmastala Rural Development Project and Bandhan

	acceptable under the applied methodology	
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VPA 08 – GS11478:

Type of CEP	Model	PO/ Implementer
Improved Cookstove	Grameen Greenway Jumbo Stove (GJS)	SKDRDP
Solar Lighting System	There are various models of Solar lighting systems distributed in VPA 08, which were all reviewed and found acceptable under the applied methodology	(SKDRDP) – Sri Kshetra Dharmastala Rural Development Project

VPA 11 – GS11481:

Type of CEP	Model	PO/ Implementer
Improved Cookstove	Grameen Greenway Jumbo Stove (GJS) Grameen Greenway Smart Stove (GSSV3) ServalS PowerGram	SKDRDP - Sri Kshetra Dharmastala Rural Development Project, Evangelical Social Action Forum (ESAF), Canara Bank and
Solar Lighting System	There are various models of Solar lighting systems distributed in VPA 11, which were all reviewed and found acceptable under the applied methodology	Muthoot Microfin Limited (MML)

VPA 13 – GS11483:

Type of CEP	Model	PO/ Implementer
Improved Cookstove	Grameen Greenway Jumbo Stove (GJS) The Greenway Smart Stove (GSSV3)	SKDRDP - Sri Kshetra Dharmastala Rural Development Project.
Solar Lighting System	There are various models of Solar lighting systems distributed in VPA 13, which were all reviewed and found acceptable under the applied methodology	Sarala Development and Microfinance Private Limited, Simpa Networks and Greenway Appliances, Arohan Financial Services Private Limited.

VPA 17 – GS11451:

Type of CEP	Model	PO/ Implementer
Improved Cookstove	Grameen Greenway Jumbo Stove (GJS)	SKDRDP
Solar Lighting System	There are various models of Solar lighting systems distributed in VPA 17, which were all reviewed and found acceptable under the applied methodology	(SKDRDP) – Sri Kshetra Dharmastala Rural Development Project

VPA 18 – GS11486:

Type of CEP	Model	PO/ Implementer
Improved Cookstove	Grameen Greenway Jumbo Stove (GJS), The Greenway Smart Stove (GSSV3)	SKDRDP
Solar Lighting System	There are various models of Solar lighting systems distributed in VPA 08, which were all reviewed and found acceptable under the applied methodology	(SKDRDP) – Sri Kshetra Dharmastala Rural Development Project

The Improved Cook stove model implemented under the PoA include Grameen Greenway Smart Stove (GSSV3) and Grameen Greenway Jumbo Stove (GJS), among other models. These ICS are high efficiency cook stoves designed as an eco-friendly and modern replacement for traditional mud & stone stoves and delivers convenient cooking without any requirement of fuel processing or change in cooking habits thus solving the health, environment and fuel collection effort required for operating traditional stoves.

Solar lighting systems implemented under the PoA are renewable energy-based LED/CFL lighting systems. Through the introduction of LED/CFL-based lighting systems the project activity is replacing portable fossil fuel-based lamps.

Water purification system disseminated under the PoA include various models. The water purifiers remove harmful virus, bacteria, parasites, pesticides and physical impurities, giving the water which is as safe as boiled water. The water purification systems disseminated in this PoA do not require electricity or continuous tap water and hence, there is no plumbing required. However, it is to be noted that no water purification systems are disseminated under verified VPAs.

Technical specification of each type of CEP models are verified with the details provided by respective CEP suppliers /21/, /22/ and found to be consistently reported in the monitoring report.

As per the PoA DD/1/ maximum 2 types of CEP shall be deployed under any VPA in any combination except ICS and Water Purifier being together. The numbers of CEPs deployed under the VPA has been confirmed by the monitoring database i.e. Credit Tracker Platform /47/.

The verification team has confirmed that the number of CEPs deployed under the VPA and the actual thermal energy savings/year (for type II) and installed capacity (for type I) were found as follows:

VPA title and GS ID	Technology	Savings/Capacity/Emission Reduction
MicroEnergy Credits PoA – CPA 04	ICS Solar Lighting system	160.61 GWh 436 tCO ₂
MicroEnergy Credits PoA – CPA	ICS Solar Lighting	130.86 GWh 17,482 tCO ₂

03403 POA VERT FORM

06	system	
MicroEnergy Credits PoA – CPA 07	ICS Solar Lighting system	161.30 GWh 8709 tCO ₂
MicroEnergy Credits PoA – CPA 08	ICS Solar Lighting system	125.71 GWh 2599 tCO ₂
MicroEnergy Credits PoA – CPA 11	ICS Solar Lighting system	78.66 GWh 25,433 tCO ₂
MicroEnergy Credits PoA – CPA 13	ICS Solar Lighting system	174.79 GWh 0.31 MW
MicroEnergy Credits PoA – CPA 17	ICS	166.62 GWh
MicroEnergy Credits PoA – CPA 18	ICS	166.65 GWh

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 DDs/2/. Further, based on the review of Credit Tracker Platform /47/, physical observations from on-site visit conducted during current monitoring period:

- The VPA(s) are 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-DDs/2/.
- All physical features of the VPA proposed in the included VPA-DDs are in place.
- The project participants/VPA implementer has operated the VPAs as per the included VPA-DDs.

The verification team has conducted surveys via on-site visits with 154 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 available with the CME. The operation of the CEPs was confirmed through remote surveys 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-DDs, as given in the table below for comparable estimated ERs in the VPA-DDs for the corresponding period:

As in CPA-DD	Estimated ERs (tCO ₂)	Actual ERs (tCO ₂)
MicroEnergy Credits PoA – CPA 04	VPA04 – 86,747 ICS VPA04 – 5,183 SLS	VPA04 – 44,184 ICS VPA04 – 436 SLS
MicroEnergy Credits PoA – CPA 06	VPA05 – 64,024 ICS VPA05 – 7,932 SLS	VPA05 – 50,964 ICS VPA05 – 17,482 SLS

	MicroEnergy Credits PoA – CPA 07	VPA07 – 82,790 ICS VPA07 – 11,677 SLS	VPA07 – 44,142 ICS VPA07 – 8,709 SLS
	MicroEnergy Credits PoA – CPA 08	VPA08 – 68,489 ICS VPA08 – 3,648 SLS	VPA08 – 38,573 ICS VPA08 – 2,599 SLS
	MicroEnergy Credits PoA – CPA 11	VPA11 – 45,941 ICS VPA11 – 22,318 SLS	VPA11 – 34,040 ICS VPA11 – 25,433 SLS
	MicroEnergy Credits PoA – CPA 13	VPA13 – 117,409 ICS VPA13 – 1,037,016 SLS	VPA 13 – 93,988 ICS VPA 13 – 58,798 SLS
	MicroEnergy Credits PoA – CPA 17	VPA17 – 68,600 ICS VPA17 – 42,182 SLS	VPA17 – 68,813 ICS VPA17 – 0
	MicroEnergy Credits PoA – CPA 18	VPA18 – 66,630 ICS VPA18 – 357,473 SLS	VPA18 – 66,392 ICS VPA 18 – 0
<p>The actual distribution of solar lighting systems and improved cookstoves for VPA's are less than the maximum quantity estimated in the VPA-DDs for corresponding year of CEP distributions. The VPA-DDs also mention that the Type 1 SSC threshold of 15 MWe and Type III SSC threshold of 60k tCO₂e will not be exceeded for all VPAS and Type II threshold of 180 GWhth will not be exceeded for the small-scale VPAs. The information (including data and variables) provided in the MR is found to be in line with the description provided in the PoA-DD/1/.</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 methodologies, tools, and forms. 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 The grievance mechanism involves recording the complaints from the beneficiaries by the field staffs to the household on a regular basis in a logbook/39/ which is maintained at the registered office. During the current monitoring period, no grievances were received which was verified upon checking the logbook/39/.</p>			
Findings	No findings		
Conclusion	The verification team can confirm that all physical features (technology, project equipment, and monitoring and metering equipment) of the VPAs were in place and that the CME operated the project activity in accordance with the registered VPA-DDs/2/ and VPA-Inclusion Report/3/ during the current monitoring period and based on the information verified through the on-site audit and interviews.		

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 implementer's) 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</p>
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households. The monitoring plan and procedures to identify each CEP sold have been followed by POs.

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 inclusion process.

The Carbon Operation Manager directly reports to 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/47/ that is maintained by MEC (CME).

The Credit Tracker Platform/47/ 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/46/ 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 solar lighting system. 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. The staff was interviewed, and training records/35/,/35.1/ were checked to ensure that they were trained for conducting the surveys/ field tests. The monitoring manager at the CME is responsible for QA/QC of the data, analysis, and reporting into the monitoring report.

In line with the registered monitoring plan, CME conducts an annual survey to ascertain the status of equipment and classify them as installed active, installed damaged and installed inactive. This process is to initiate a repair/post-sales service. All the products which were found to be damaged or inactive are discounted from emission reduction calculation as verified from emission reduction spreadsheet/5/6/7/8/52/53/54/55/. There are no CEPs with installed inactive status in the database for the VPA included in batch requesting issuance.

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.

Original copies of sales receipts/23/, completed survey forms/41/ and carbon title transfer forms/14/ are retained by the respective POs/VPA implementers. The organizational structure and roles and responsibilities for monitoring were in line with the information provided in the VPA-DDs/02/, 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/14/ with the PO while purchasing the

	<p>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/14/ were duly signed by the end-users. Further, a signed contractual agreement between the PO and the CME/41/ guides the transfer of the emission reduction rights to the CME. It has been checked and verified from sample carbon title transfer forms/14/ and agreement between POs and CME/40/ that for the VPA's covered in current verification, the carbon credits generated from the CPA belong to the POs and are later transferred to the CME (MEC). The verification team confirms that the process pertaining to the transfer of emission reduction rights to CME is valid and appropriate for the all VPAs under this batch which are requesting issuance.</p>
Findings	No Finding were raised.
Conclusion	<p>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 /41/. 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/01/.</p>

E.4.3. Post-design certification changes

E.4.3.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

Not Applicable

E.4.3.2. Corrections

Not Applicable

E.4.3.3. Inclusion of a monitoring plan

Not Applicable

E.4.3.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

Not Applicable

E.4.3.5. Changes to the programme design

Not Applicable

E.4.3.6. Addition of CPA inclusion template

Not Applicable

E.4.3.7. Change of coordination/managing entity

Not Applicable

E.4.3.8. Change 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

document

Means of verification	The reporting for this issuance has been done technology-wise, thus section E.5 shall be dealing with distribution of ICS and its compliance with PoA-DD/01/ and applicable standard.				
	VPAs described in this section target the promotion, distribution and sale of ICS (Improved Cook Stoves) i.e., Greenway Jumbo Stoves (GJS), ServaIS PowerGram and Greenway Smart Stove (GSSV3). According to a third-party lab assessment/49/, this cookstove has a thermal efficiency of 31.17%, 40% and 25.19% respectively/49/.				
	Micro Energy Credits Corporation Private Limited is the Coordinating and Managing Entity (CME) for the implementation of VPA's. The CME coordinates and manages each Partner Organization (PO)/ VPA Implementer and assists them in implementing each element of the monitoring plan, which was confirmed to be the case by interviewing the CME and PO staff.				
	Improved cookstove:				
	VPA Ref. #	GS 11476 (VPA 04)	GS 11505 (VPA 05)	GS 11477 (VPA 07)	GS 11478 (VPA 08)
	Location	/ Karnataka	Karnataka	Karnataka.	Karnataka

	State			Tamil Nadu, Chhattisgarh, Madhya Pradesh	
	CEP Type	ICS	ICS	ICS	ICS
	CEP Model	Grameen Greenway Smart Stove (GSSV3)	Grameen Greenway Smart Stove (GSSV3)	Grameen Greenway Smart Stove (GSSV3)	Grameen Greenway Smart Stove (GSSV3)
	VPA Implementer / PO	SKDRDP	SKDRDP	SKDRDP	SKDRDP
	Total Quantity Sold / Disseminated	14,375	66,137	35,522	9,421
	Maximum Estimated Qty CEPs in CPA ((for comparable year of distribution)	26,944	19,963	25,646	23,337
	Estimated ERs (comparable period) (tCO2e)	86,747	97,001	82,791	68,489
	Actual ERs from the CEP Type (tCO2e)	44,184	50,964	44,142	38,573
	VPA Ref. #	GS 11481 (VPA 11)	GS 11483 (VPA 13)	GS 11451 (VPA 17)	GS 11486 (VPA 18)
	Location / State	Karnataka	Karnataka	Karnataka, Tamil Nadu, Chhattisgarh, Madhya Pradesh	Karnataka
	CEP Type	ICS	ICS	ICS	ICS
	CEP Model	Grameen Greenway Smart Stove (GSSV3), Grameen Greenway Jumbo Stove (GJS) & SeravaIS PowerGram	Grameen Greenway Smart Stove (GSSV3) Grameen Greenway Jumbo Stove (GJS)	Grameen Greenway Jumbo Stove (GJS)	Grameen Greenway Jumbo Stove (GJS) Grameen Greenway Smart Stove (GSSV3)

	VPA Implementer / PO	SKDRDP, ESAF, Canara Bank	SKDRDP	SKDRDP	SKDRDP
	Total Quantity Sold / Disseminated	VPA11 14,220 –	VPA13 27,000 –	VPA17 26,921 –	VPA18 26,080 –
	Maximum Estimated Qty CEPs in CPA ((for comparable year of distribution)	VPA11 14,220 –	VPA13 27,000 –	VPA17 26,921 –	VPA18 26,632 –
	Estimated ERs (comparable period) (tCO ₂ e)	47,904	117,409	85,788	81,815
	Actual ERs from the CEP Type (tCO ₂ e)	34,040	93,988	68,813	66,392
	<p>VPA 04 – GS11476:</p> <p>ICS were distributed in Karnataka in India, which is consistent with the description given in the included VPA DDs/2/. By the end of current monitoring period requesting issuance, total 29,937 ICS were disseminated under this VPAs, which is within the estimated quantity of 29,937 ICSs of the VPA DDs/2/ for comparable year of distribution. It's a large scale VPA and therefore, no thermal savings threshold is applicable. The distribution model is that stoves are distributed by PO, managed by CME. The 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.</p> <p>VPA 05 – GS11505:</p> <p>ICS were distributed in Karnataka in India, which is consistent with the description given in the included VPA DDs/2/. By the end of current monitoring period requesting issuance, total 19,963 ICS were disseminated under this VPA, which is within the estimated quantity of 19,963 ICSs of the VPA DDs/2/ for comparable year of distribution. It has been checked by the verification team that the VPAs is below the threshold of 180 GWh/year (thermal). The distribution model is that stoves are distributed by PO, managed by CME. The 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.</p> <p>VPA 07 – GS11477:</p> <p>ICS were distributed in Karnataka, Tamil Nadu, Chhattisgarh and Madhya Pradesh in India, which is consistent with the description given in the included VPA DDs/2/. By the end of current monitoring period requesting issuance, total 28,495 ICS were disseminated under this</p>				

VPAs, which is within the estimated quantity of 28,495 ICSs of the VPA DDs/2/ for comparable year of distribution. It's a large scale VPA and therefore, no thermal savings threshold is applicable. The distribution model is that stoves are distributed by PO, managed by CME. The 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.

VPA 08 – GS11478:

ICS were distributed in Karnataka in India, which is consistent with the description given in the included VPA DDs/02/. By the end of current monitoring period requesting issuance, total 23,337 ICS were disseminated under this VPAs, which is within the estimated quantity of 23,337 ICSs of the VPA DDs/02/ for comparable year of distribution. It has been checked by the verification team that the VPAs is below the threshold of 180 GWh/year (thermal), however, as per VPA-DDs the scale of the VPA's is defined as large scale for ICS. The distribution model is that stoves are distributed by PO, managed by CME. The 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.

VPA 11 – GS11481:

ICS were distributed in Karnataka, Kerala, Maharashtra and Tamil Nadu in India, which is consistent with the description given in the included VPA DDs/02/. By the end of current monitoring period requesting issuance, total 14,220 ICS were disseminated under this VPAs, which is within the estimated quantity of 14,220 ICSs of the VPA DDs/02/ for comparable year of distribution. It has been checked by the verification team that the VPAs is way below the threshold of 180 GWh/year (thermal). The distribution model is that stoves are distributed by PO, managed by CME. The 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.

VPA 13 – GS11483:

ICS were distributed in Karnataka in India, which is consistent with the description given in the included VPA DDs/02/. By the end of current monitoring period requesting issuance, total 27,000 ICS were disseminated under this VPAs, which is within the estimated quantity of 27,000 ICSs of the VPA DDs/02/ for comparable year of distribution. It's a large scale VPA and therefore, no thermal savings threshold is applicable. The distribution model is that stoves are distributed by PO, managed by CME. The 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.

VPA 17 –GS11451:

ICS were distributed in Karnataka in India, which is consistent with the description given in the included VPA DDs/02/. By the end of current monitoring period requesting issuance, total 26,921 ICS were disseminated under this VPAs, which is within the estimated quantity of 26,921 ICSs of the VPA DDs/02/ for comparable year of distribution. It's a large scale VPA and therefore, no thermal savings threshold is applicable. The distribution model is that stoves are distributed by PO, managed by CME. The stoves are sold to end users and the sales data is collected by means of sales receipts/22/ at the time of sale to the end-user.

	<p>VPA 18 – GS11486:</p> <p>ICS were distributed in Karnataka in India, which is consistent with the description given in the included VPA DDs/02/. By the end of current monitoring period requesting issuance, total 26,080 ICS were disseminated under this VPAs, which is within the estimated quantity of 26,080 ICSs of the VPA DDs/02/ for comparable year of distribution. It's a large scale VPA and therefore, no thermal savings threshold is applicable. The distribution model is that stoves are distributed by PO, managed by CME. The stoves are sold to end users and the sales data is collected by means of sales receipts/22/ at the time of sale to the end-user.</p> <p>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's are involved in this issuance has allocated unique identification numbers to the CEPs sold by them. This information was checked against sample end-user documentation/19//23/, CME database/08/, and was found to be appropriate. The 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.</p> <p>This verification report covers the monitoring period from 01/01/2021 to 31/12/2021(inclusive of both the dates).</p>
Findings	No findings were raised
Conclusion	<ul style="list-style-type: none"> • The verification team is of the opinion that physical features of the VPA have been implemented in accordance with the VPA-DDs/02/. • 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-DDs /02/. • The VPA's was also found to be completely operational in line with the VPA-DDs /02/. • The information provided in the relevant sections of the monitoring report are appropriately describe the implementation and operational status of the PoA.

E.5.2. Post-design Certification Changes

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

Not Applicable

E.5.2.2. Corrections

Not Applicable

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

Not Applicable

E.5.2.4. Change to project design of approved project

Not Applicable

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-DDs/02/ was reviewed in relation to the monitoring requirements of the applied methodology, TPDDTEC, version 3.1 /09/, as well as the PoA DD /01/, bearing in mind the technology involved. In light of the review conducted, it was found that the monitoring plan in the VPA-DDs/02/ 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/01/ and applied methodology/09//10/11/. That is included in the VPA-DDs/02/.
Findings	No findings raised.
Conclusion	The monitoring plan is in line with the approved methodology, Gold Standard Simplified Methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 3.1 /09/, that is included in the registered PoA DD/1/ and VPA-DDs/02/. The monitoring plan is in accordance with the applied methodology /09//10//11/ that is included in the VPA-DDs/02/.

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: Quantity of fuel consumed in baseline scenario b during year y, in kg/HH-day

Means verification	of	<p>Quantity $P_{b,y}$ – kg per household per day</p> <p>The value of this parameter considered is mentioned below as per VPA-DDs. This was cross checked with the baseline kitchen performance test (KPT)². The calculation steps and the attendant references in the excel sheet/08/ were checked. The sample mean of the daily consumption of dry fuelwood is a statistically determined value at 90/10 confidence interval/precision, derived based on the 4 consecutive days of fuelwood consumption when the KPT was conducted. The standard deviation of the sample is obtained from a revised sample size. This effectively removes overestimation of fuelwood estimation in baseline by eliminating the outliers in the household in the observational period of 4 consecutive days.</p> <p>The Precision check has been conducted by the CME on the outlier eliminated samples at 90/10, which is found to be below the threshold of 10%, hence was acceptable.</p> <p>This value is used in the baseline emission determination for all four VPA's</p>																								
		<table><tr><th>VPA Number</th><th>State</th><th>Value</th></tr><tr><td>VPA 04</td><td>Karnataka</td><td>7.02</td></tr><tr><td>VPA 05</td><td>Karnataka</td><td>7.77</td></tr><tr><td rowspan="4">VPA 07</td><td>Karnataka</td><td>6.99</td></tr><tr><td>Tamil Nadu</td><td>6.85</td></tr><tr><td>Chhattisgarh</td><td>6.99</td></tr><tr><td>Madhya Pradesh</td><td>7.13</td></tr><tr><td>VPA 08</td><td>Karnataka</td><td>7.11</td></tr><tr><td>VPA 11</td><td>Karnataka</td><td>7.13</td></tr></table>	VPA Number	State	Value	VPA 04	Karnataka	7.02	VPA 05	Karnataka	7.77	VPA 07	Karnataka	6.99	Tamil Nadu	6.85	Chhattisgarh	6.99	Madhya Pradesh	7.13	VPA 08	Karnataka	7.11	VPA 11	Karnataka	7.13
	VPA Number	State	Value																							
	VPA 04	Karnataka	7.02																							
	VPA 05	Karnataka	7.77																							
	VPA 07	Karnataka	6.99																							
		Tamil Nadu	6.85																							
		Chhattisgarh	6.99																							
		Madhya Pradesh	7.13																							
	VPA 08	Karnataka	7.11																							
VPA 11	Karnataka	7.13																								

² <https://cleancooking.org/binary-data/DOCUMENT/file/000/000/604-1.pdf>

		Kerala	6.93
		Maharashtra	7.19
		Tamil Nadu	7.14
	VPA 13	Karnataka	6.99
	VPA 17	Karnataka	7.12
	VPA 18	Karnataka	7.01
Findings	No findings were raised.		
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /05/ are consistent with the approach given in registered VPA-DDs wherein it is recommended to establish baseline fuel usage for VPAs at the time of verification/02/. Hence the applied value is correct and justified.		

SDG13: CO₂ emission factor arising from use of fuel type I in baseline scenario, tCO₂e/ t_{fuel}

Means verification	of	EF _{b, I, CO₂} -- The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.5-- Default emission factors for stationary combustion in the residential and agriculture/forestry/fishing/fishing farms categories/33/. This value is used towards determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs.	
		VPA Number	Value
		VPA 04	112 tCO ₂ /TJ
		VPA 05	112 tCO ₂ /TJ
		VPA 07	112 tCO ₂ /TJ
		VPA 08	112 tCO ₂ /TJ
		VPA 11	112 tCO ₂ /TJ
		VPA 13	112 tCO ₂ /TJ
		VPA 17	112 tCO ₂ /TJ
		VPA 18	112 tCO ₂ /TJ
Findings	No findings were raised.		
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DDs/02/. The applied value is correct and justified.		

SDG13: Non-CO₂ emission factor arising from use of fuel type i in baseline scenario, tCO₂/t_{fuel}

Means verification	of	EF _{b, i, non-CO₂} -- The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.9-- Residential Source Emission Factors. The value is calculated using the Emission factor of firewood for CH ₄ and N ₂ O and their corresponding GWP./33/ This value is used for the determination of baseline emissions. This value is used towards determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs	
		VPA Number	Value
		VPA 04	37.25 tCO ₂ /TJ
		VPA 05	37.25 tCO ₂ /TJ
		VPA 07	37.25 tCO ₂ /TJ
		VPA 08	37.25 tCO ₂ /TJ

		VPA 11	37.25 tCO ₂ /TJ	
		VPA 13	37.25 tCO ₂ /TJ	
		VPA 17	37.25 tCO ₂ /TJ	
		VPA 18	37.25 tCO ₂ /TJ	
Findings	No findings were raised.			
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.			

SDG13: CO₂ emission factor arising from use of fuel type *i* in project scenario, tCO₂/t_{fuel}

Means of verification	<p>EF_{p,i,CO2}-- The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.5-- Default emission factors for stationary combustion in the residential and agriculture/forestry/fishing/fishing farms categories/33/. This value is used towards determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs.</p> <table> <tr> <th>VPA Number</th><th>Value</th></tr> <tr><td>VPA 04</td><td>112 tCO₂/TJ</td></tr> <tr><td>VPA 05</td><td>112 tCO₂/TJ</td></tr> <tr><td>VPA 07</td><td>112 tCO₂/TJ</td></tr> <tr><td>VPA 08</td><td>112 tCO₂/TJ</td></tr> <tr><td>VPA 11</td><td>112 tCO₂/TJ</td></tr> <tr><td>VPA 13</td><td>112 tCO₂/TJ</td></tr> <tr><td>VPA 17</td><td>112 tCO₂/TJ</td></tr> <tr><td>VPA 18</td><td>112 tCO₂/TJ</td></tr> </table>	VPA Number	Value	VPA 04	112 tCO ₂ /TJ	VPA 05	112 tCO ₂ /TJ	VPA 07	112 tCO ₂ /TJ	VPA 08	112 tCO ₂ /TJ	VPA 11	112 tCO ₂ /TJ	VPA 13	112 tCO ₂ /TJ	VPA 17	112 tCO ₂ /TJ	VPA 18	112 tCO ₂ /TJ
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VPA 13	112 tCO ₂ /TJ																		
VPA 17	112 tCO ₂ /TJ																		
VPA 18	112 tCO ₂ /TJ																		
Findings	No findings were raised.																		
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.																		

SDG13: Non- CO₂ emission factor arising from use of fuel type *i* in project scenario, tCO₂/t_{fuel}

Means of verification	<p>EF_{p, i, non-CO2}-- The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.9-- Residential Source Emission Factors. The value's calculated using the Emission factor of firewood for CH₄ and N₂O and their corresponding GWP/33/. This value is used towards determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs</p> <table> <tr> <th>VPA Number</th><th>Value</th></tr> <tr><td>VPA 04</td><td>37.25 tCO₂/TJ</td></tr> <tr><td>VPA 05</td><td>37.25 tCO₂/TJ</td></tr> <tr><td>VPA 07</td><td>37.25 tCO₂/TJ</td></tr> <tr><td>VPA 08</td><td>37.25 tCO₂/TJ</td></tr> <tr><td>VPA 11</td><td>37.25 tCO₂/TJ</td></tr> <tr><td>VPA 13</td><td>37.25 tCO₂/TJ</td></tr> <tr><td>VPA 17</td><td>37.25 tCO₂/TJ</td></tr> <tr><td>VPA 18</td><td>37.25 tCO₂/TJ</td></tr> </table>	VPA Number	Value	VPA 04	37.25 tCO ₂ /TJ	VPA 05	37.25 tCO ₂ /TJ	VPA 07	37.25 tCO ₂ /TJ	VPA 08	37.25 tCO ₂ /TJ	VPA 11	37.25 tCO ₂ /TJ	VPA 13	37.25 tCO ₂ /TJ	VPA 17	37.25 tCO ₂ /TJ	VPA 18	37.25 tCO ₂ /TJ
VPA Number	Value																		
VPA 04	37.25 tCO ₂ /TJ																		
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VPA 13	37.25 tCO ₂ /TJ																		
VPA 17	37.25 tCO ₂ /TJ																		
VPA 18	37.25 tCO ₂ /TJ																		

Findings	No findings were raised.
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.

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

Means verification of	<p>NCV_{b,i}-- 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 Default IPCC values for wood/wood waste are applied/33/.</p> <p>This value is used for the determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs</p>	
	VPA Number	Value
	VPA 04	0.0156 TJ/tonnes
	VPA 05	0.0156 TJ/tonnes
	VPA 07	0.0156 TJ/tonnes
	VPA 08	0.0156 TJ/tonnes
	VPA 11	0.0156 TJ/tonnes
	VPA 13	0.0156 TJ/tonnes
	VPA 17	0.0156 TJ/tonnes
	VPA 18	0.0156 TJ/tonnes
Findings	No findings were raised.	
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.	

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

Means verification of	<p>NCV_{p,i}-- 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./33/</p> <p>This value is used for the determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs</p>	
	VPA Number	Value
	VPA 04	0.0156 TJ/tonnes
	VPA 05	0.0156 TJ/tonnes
	VPA 07	0.0156 TJ/tonnes
	VPA 08	0.0156 TJ/tonnes
	VPA 11	0.0156 TJ/tonnes
	VPA 13	0.0156 TJ/tonnes
	VPA 17	0.0156 TJ/tonnes
	VPA 18	0.0156 TJ/tonnes
Findings	No findings were raised.	
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.	

SDG13: Fraction of biomass used in year y for baseline scenario b that can be established as non-renewable biomass, fraction

Means of verification	<p>$f_{NRB,b,i,y}$ – The value of f_{NRB} is calculated using the Tool 30: Calculation of the fraction of non-renewable biomass of CDM/49/. As per the tool, PD has referred to the FSI report of various states of India to calculate the individual f_{NRB}. The detailed calculation of the approach has been assessed by the VVB through a f_{NRB} calculation excel sheet. The formulas and approach used by the PD is found to be appropriate and in line with the applied methodology/9/ and Tool 30/49/.</p> <p>This value is used for the determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs</p>	
	VPA Number	State
	VPA 04	Karnataka
	VPA 05	Karnataka
	VPA 07	Karnataka
		Tamil Nadu
		Chhattisgarh
		Madhya Pradesh
	VPA 08	Karnataka
	VPA 11	Karnataka
		Kerala
		Maharashtra
		Tamil Nadu
	VPA 13	Karnataka
	VPA 17	Karnataka
	VPA 18	Karnataka
Findings	No findings were raised.	
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.	

E.5.4.2. Data and parameters monitored (Carbon & SDG)
SDG13: Quantity of fuel consumed in project scenario p during year y, $P_{p,y,i}$ in kg/HH-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-DDs/2/
	Monitoring equipment	This value is derived statistically based on surveys in project scenario, adopting minimum 4 consecutive days of wood consumption by the sampled household. The weight of the fuelwood is measured by

		<p>weighing scales.</p> <p>Type – Digital Moisture Meter</p> <p>Accuracy Class - +/- 1%</p> <p>Serial number – TM157341, TM157285, TM28591, TM240016, TM28657, TM240017, TM28618, TM239929, TM157277</p> <p>Calibration frequency – Annual</p> <p>Date of calibration – 19/02/2021</p> <p>Validity – Until 18/02/2022</p> <p>Serial number – X014064, X014086, X013975, X014073, X014104, X014102, X014082, X014049,</p> <p>Calibration frequency – Annual</p> <p>Date of calibration – 16/12/2021</p> <p>Validity – Until 15/12/2022</p> <p>Type - Weighing Scale</p> <p>Accuracy Class - +/- 0.5 grams</p> <p>Serial number – WS00120, WS00123, WS12012, WS00132, WS00156, WS00151, WS00153, WS00436, WS00136,</p> <p>Calibration frequency – Annual</p> <p>Date of calibration – 15/02/2021</p> <p>Validity – Until 14/02/2022</p> <p>Serial number – WB01, WB02, WB03, WB04, WB06, WB07, WB08</p> <p>Calibration frequency – Annual</p> <p>Date of calibration – 17/12/2021</p> <p>Validity – Until 16/12/2022</p>
	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?	<p>This is statistically derived value whose computation is explained as follows: The 4 consecutive day consumption of the firewood by the sampled household is calculated using 90/10 rule. The purpose of the calculation is to find the mean value of the firewood consumption which is as close to the population mean as possible.</p> <p>The calculation behind this was verified from the ER Calculation sheet of VPA 04, 05, 07, 08, 11, 13, 17, 18/05/. As per 90/10 rule, the mean consumption from the sampled household is acceptable if the precision value 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 less than 10% of the outer bounds if 90/10 is</p>

applied, to accept the sample mean.

The calculation steps, and the applicability with the methodology/09/ 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 wood consumption.

The outliers were defined as follows:

Upper Outlier Threshold (UOT): Upper Quartile of means of firewood consumption + 1.5* interquartile range of firewood consumption

Lower Outlier Threshold (LOT): Lower Quartile of means of firewood consumption-- 1.5* interquartile range of firewood consumption

For the monitoring period and as per the random sampling of households, the quantity of firewood which are equal to or above UOT were ignored for arriving at the mean value of the samples. The computations are conservative and does not overestimate the fuelwood consumption which in turns underestimates the emission reduction. To account for seasonal variations in wood consumption, 2 KPTs were conducted in dry and wet season. However, CME has calculated the ERs based on the higher wood consumption. During the current monitoring period, wood consumption in wet season comes out to be higher for all the VPAs and has been used by CME, which is found to be conservative. Calculations of both project KPT has been reviewed and found to be appropriate.

The values obtained for this parameter:

VPA#	Model/State	Value (kg/HH/day)
VPA 04	Smart/KA	3.6
VPA 05	Smart/KA	3.6
VPA 07	Smart/KA	3.4
	Smart/CG	3.4
	Smart/MP	3.3
	Smart/TN	3.2
VPA 08	Smart/KA	3.5
VPA 11	Smart/KA	3.4
	Jumbo/KA	3.4
	Jumbo/KL	3.6
	Smart/MH	3.7
	Powergram/TN	3.4

		VPA 13	Smart/KA	3.1	
			Jumbo/KA	2.6	
		VPA 17	Jumbo/KA	3.2	
		VPA 18	Jumbo/KA	3.0	
			Smart/KA	2.9	
	If applicable, has the reported data been cross-checked with other available data?	Not applicable			
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy. At the outset of each research, the equipment used in KPT is calibrated. Section E.5.6 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.			
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable			
Findings	CL#01, CAR#04 raised and resolved				
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology/9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1/.				

SDG13: Usage rate in project scenario p during year y determined on a sampling basis, Up,y, Fraction(or %)

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DDs/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 value obtained during this monitoring period are: MP: 01/01/2021 to 31/12/2021</p> <table border="1"> <thead> <tr> <th>VPA#</th><th>Model/State</th><th>Value (%)</th></tr> </thead> <tbody> <tr> <td>VPA 04</td><td>Smart/KA</td><td>57%</td></tr> <tr> <td>VPA 07</td><td>Smart/KA Smart/CG Smart/MP Smart/TN</td><td>61% 51% 58% 65%</td></tr> <tr> <td>VPA 08</td><td>Smart/KA</td><td>61%</td></tr> <tr> <td>VPA 17</td><td>Jumbo/KA</td><td>86%</td></tr> <tr> <td>VPA 18</td><td>Jumbo/KA Smart/KA</td><td>83% 85%</td></tr> </tbody> </table> <p>MP: 27/06/2020 to 31/12/2021</p> <table border="1"> <thead> <tr> <th>VPA</th><th>Model/State</th><th>Value s-Yr1</th><th>Value s-Yr2</th></tr> </thead> <tbody> <tr> <td>VPA5</td><td>Smart/KA</td><td>56%</td><td>54%</td></tr> <tr> <td>VPA11</td><td>Smart/KA Jumbo/KA Jumbo/KL Smart/MH Powergram/TN</td><td>74% 55% 66% 66% 66%</td><td>68% 53% 62% 61% 60%</td></tr> <tr> <td>VPA13</td><td>Smart/KA Jumbo/KA</td><td>76% 76%</td><td>70% 71%</td></tr> </tbody> </table> <p>This value was accepted after checking the user habit survey results /42/ 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 continuous 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 and through interviews during the onsite visit.</p>		VPA#	Model/State	Value (%)	VPA 04	Smart/KA	57%	VPA 07	Smart/KA Smart/CG Smart/MP Smart/TN	61% 51% 58% 65%	VPA 08	Smart/KA	61%	VPA 17	Jumbo/KA	86%	VPA 18	Jumbo/KA Smart/KA	83% 85%	VPA	Model/State	Value s-Yr1	Value s-Yr2	VPA5	Smart/KA	56%	54%	VPA11	Smart/KA Jumbo/KA Jumbo/KL Smart/MH Powergram/TN	74% 55% 66% 66% 66%	68% 53% 62% 61% 60%	VPA13	Smart/KA Jumbo/KA	76% 76%	70% 71%
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VPA13	Smart/KA Jumbo/KA	76% 76%	70% 71%																																		
If applicable, has the reported data been cross-checked with	<p>The survey results, assumptions and sales records were checked by the verification team and were found acceptable. The results</p>																																				

	other available data?	<p>are reproducible in the corresponding ER sheet of final Monitoring Report.</p> <p>The responses from randomly selected samples from VPAs for ICS under this batch issuance for VVB survey were cross-checked with CME monitoring survey forms which were provided by the CME, and all end users responses were consistent with monitoring results.</p> <p>The usage values were also compared with values obtained from last monitoring conducted for previous MP. It was evident from the values provided that the parameter value (i.e. usage rate) has decreased for each sub-group since the previous monitoring, which is reasonable and can be attributed to older age of stoves making those more prone to damages and discontinuation of usage.</p>
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the VPA implementer and established through on-site interviews.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable
Findings	None	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology/9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/2/.	

SDG13: Policy for encouraging discontinuation of baseline stove

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Updated every two years
	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-DDs/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 internal records of the MEC Credit tracker-based database excel spreadsheets/47/.</p> <p>End user trainings/35.1/ were checked which demonstrates that users have been informed about the use of project stoves and phase out of baseline stove.</p>
	If applicable, has the reported data been cross-checked with other available data?	<p>Information about the baseline system used is recorded at the time of loan processing, ICS buyers provide this information which is recorded in the baseline survey forms.</p> <p>The verification team has verified the sample baseline survey forms and found to be satisfactory.</p> <p>As another cross-check, the verification team, while conducting the remote survey of 11 randomly selected households from each VPA, also questioned the end-users about the baseline system. All 11 sampled household responses from each VPA were consistent with information provided in credit tracker platform.</p>
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable
Findings	CAR#04 raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology /9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/2/.	

SDG13: Technologies in the monitoring Database for project scenario p through year y, Np,y, Number

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation

n	Measuring /Reading /Recording frequency	This parameter is measured continuously																												
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DDs/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/47/ and sales records/23/. The value of the parameter as per VPAs are:</p> <table border="1"> <thead> <tr> <th>VPA#</th> <th>Model/State</th> <th>Value (Number)</th> </tr> </thead> <tbody> <tr> <td>VPA 04</td> <td>Smart/KA</td> <td>29,937</td> </tr> <tr> <td>VPA 05</td> <td>Smart/KA</td> <td>19,963</td> </tr> <tr> <td>VPA 07</td> <td>Smart/KA Smart/CG Smart/MP Smart/TN</td> <td>23,337 2,492 1,689 977</td> </tr> <tr> <td>VPA 08</td> <td>Smart/KA</td> <td>23,337</td> </tr> <tr> <td>VPA 11</td> <td>Smart/KA Jumbo/KA Jumbo/KL Smart/MH Powergram/TN</td> <td>34 555 4,950 7,353 1,328</td> </tr> <tr> <td>VPA 13</td> <td>Smart/KA</td> <td>27,000</td> </tr> <tr> <td>VPA 17</td> <td>Jumbo/KA</td> <td>26,921</td> </tr> <tr> <td>VPA 18</td> <td>Jumbo/KA Smart/KA</td> <td>26,000 80</td> </tr> </tbody> </table>		VPA#	Model/State	Value (Number)	VPA 04	Smart/KA	29,937	VPA 05	Smart/KA	19,963	VPA 07	Smart/KA Smart/CG Smart/MP Smart/TN	23,337 2,492 1,689 977	VPA 08	Smart/KA	23,337	VPA 11	Smart/KA Jumbo/KA Jumbo/KL Smart/MH Powergram/TN	34 555 4,950 7,353 1,328	VPA 13	Smart/KA	27,000	VPA 17	Jumbo/KA	26,921	VPA 18	Jumbo/KA Smart/KA	26,000 80
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VPA 07	Smart/KA Smart/CG Smart/MP Smart/TN	23,337 2,492 1,689 977																												
VPA 08	Smart/KA	23,337																												
VPA 11	Smart/KA Jumbo/KA Jumbo/KL Smart/MH Powergram/TN	34 555 4,950 7,353 1,328																												
VPA 13	Smart/KA	27,000																												
VPA 17	Jumbo/KA	26,921																												
VPA 18	Jumbo/KA Smart/KA	26,000 80																												
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 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 facilitate accurate record keeping in their MIS system/Credit Tracker Platform.</p> <p>During the site visit the sale process, record keeping was reviewed and were found reliable.</p>																													
In case project participants have temporarily not	Not Applicable																													

	monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	
Findings	No findings	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology /9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: Leakage in project scenario p during year y, LEp,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-DDs/2/																			
	Monitoring equipment	Not Applicable																			
	Calibration frequency /interval:	Not Applicable																			
	How were the values in the monitoring report verified?	The verified value in this monitoring period was assessed to be:																			
		<table><tr><th>VPA#</th><th>Value (tCO₂e/year)</th></tr><tr><td>VPA 04</td><td>0</td></tr><tr><td>VPA 05</td><td>0</td></tr><tr><td>VPA 07</td><td>0</td></tr><tr><td>VPA 08</td><td>0</td></tr><tr><td>VPA 11</td><td>0</td></tr><tr><td>VPA 13</td><td>0</td></tr><tr><td>VPA 17</td><td>0</td></tr><tr><td>VPA 18</td><td>0</td></tr></table>		VPA#	Value (tCO ₂ e/year)	VPA 04	0	VPA 05	0	VPA 07	0	VPA 08	0	VPA 11	0	VPA 13	0	VPA 17	0	VPA 18	0
	VPA#	Value (tCO ₂ e/year)																			
VPA 04	0																				
VPA 05	0																				
VPA 07	0																				
VPA 08	0																				
VPA 11	0																				
VPA 13	0																				
VPA 17	0																				
VPA 18	0																				
	There are 4 ways in which the leakages can occur in this project activity <ul style="list-style-type: none">i. The displaced stove is reused outside the project boundary in place of lower emitting technologyii. The non-renewable biomass/fossil fuel saved due to the project activity are used																				

		<p>by non-beneficiaries who previously used lower emitting sources</p> <p>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</p> <p>iv. The project population compensates loss of space heating effect of inefficient tech by adopting some other form of heating or by retaining some use of inefficient technology.</p> <p>However, all the four conditions can be discounted as follows:</p> <p>i. The baseline stove were 3 stone/traditional rudimentary stove. Owing to the crudeness to its design and 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</p> <p>ii. Due to the abundance of the firewood in the project location the risk of non-renewable biomass used by non-project users does not arise and does not pose a threat to leakage emissions</p> <p>iii. Again, the sheer scale of biomass availability in the project activity area vis a vis the project activity, the VPA does not pose a threat of biomass or the fNRB value. Besides this parameter is going to be checked at the beginning of every VPA crediting period.</p> <p>iv. Due to the temperate and climate in Karnataka, India the need for space heating is minimal. Also, no evidence suggests that this is the case. Besides the PMS covers all non-cooking use of the household.</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.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable

Findings	None
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology /9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.

SDG1: Number of ICS distributed in Project, BSAProject, Number

Relevant SDG Indicator	SDG 1: No poverty																																												
Means of verification	Criteria/Requirements	Assessment/Observation																																											
	Measuring /Reading /Recording frequency	This parameter is measured on annual basis																																											
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DDs/2/																																											
	Monitoring equipment	Not Applicable																																											
	Calibration frequency /interval:	Not Applicable																																											
	How were the values in the monitoring report verified?	The verified value for this parameter as per VPAs are:																																											
		<table> <tr> <th>VPA#</th><th>Model/State</th><th>Value (Number)</th></tr> <tr> <td>VPA 04</td><td>Smart/KA</td><td>29,937</td></tr> <tr> <td>VPA 05</td><td>Smart/KA</td><td>19,963</td></tr> <tr> <td rowspan="4">VPA 07</td><td>Smart/KA</td><td>23,337</td></tr> <tr> <td>Smart/CG</td><td>2,492</td></tr> <tr> <td>Smart/MP</td><td>1,689</td></tr> <tr> <td>Smart/TN</td><td>977</td></tr> <tr> <td>VPA 08</td><td>Smart/KA</td><td>23,337</td></tr> <tr> <td rowspan="4">VPA 11</td><td>Smart/KA</td><td>34</td></tr> <tr> <td>Jumbo/KA</td><td>555</td></tr> <tr> <td>Jumbo/KL</td><td>4,950</td></tr> <tr> <td>Smart/MH</td><td>7,353</td></tr> <tr> <td></td><td>Powergram/TN</td><td>1,328</td></tr> <tr> <td>VPA 13</td><td>Smart/KA</td><td>27,000</td></tr> <tr> <td>VPA 17</td><td>Jumbo/KA</td><td>26,921</td></tr> <tr> <td rowspan="2">VPA 18</td><td>Jumbo/KA</td><td>26,000</td></tr> <tr> <td>Smart/KA</td><td>80</td></tr> </table> <p>The records of number of VPAs for ICS distributed in monitoring database, ex-post monitoring survey records were cross checked. Since the database is a primary source of data collection and the QA/QC were found to be robust as described below,</p>	VPA#	Model/State	Value (Number)	VPA 04	Smart/KA	29,937	VPA 05	Smart/KA	19,963	VPA 07	Smart/KA	23,337	Smart/CG	2,492	Smart/MP	1,689	Smart/TN	977	VPA 08	Smart/KA	23,337	VPA 11	Smart/KA	34	Jumbo/KA	555	Jumbo/KL	4,950	Smart/MH	7,353		Powergram/TN	1,328	VPA 13	Smart/KA	27,000	VPA 17	Jumbo/KA	26,921	VPA 18	Jumbo/KA	26,000	Smart/KA
VPA#	Model/State	Value (Number)																																											
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VPA 18	Jumbo/KA	26,000																																											
	Smart/KA	80																																											

		the values were accepted.
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable
Findings	None	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology /9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG3: HH reporting reduction in smoke while cooking on improved stove in project, SPMHH, %

Relevant SDG Indicator	SDG 3: Good Health and Well Being		
Means of verification	Criteria/Requirements	VVB Assessment	
	Measuring /Reading /Recording frequency	Annually	
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency in line to the PoA-DD/1/ and VPA-DDs/2/.	
	How were the values in the monitoring report verified?	<p>The usage Survey Records/8/19/ was checked to find out the respondent's responses regarding reduced smoke. This was further cross checked during the onsite visit when the households having the ICS were asked about the reduction in smoke by using the project ICS and all of the end users agreed that there is reduction in smoke compared to the baseline.</p> <p>The value of the parameter as per VPAs are:</p>	
		VPA#	Value (%)

		VPA 04	64%
		VPA 05	62%
		VPA 07	66%
		VPA 08	68%
		VPA 11	64%
		VPA 13	73%
		VPA 17	86%
		VPA 18	83%
	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	None		
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/, and registered VPA-DDs/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.		

SDG 5: Time Saving per Households, HHTSProject, %

Relevant SDG Indicator	SDG 5: Gender Equality		
Means of verification	Criteria/Requirements	VVB Assessment	
	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 to the PoA-DD/1/ and VPA-DDs/2/.	
	How were the values in the monitoring report verified?	The Monitoring Survey Records/8//19/ was checked to find out the respondent's responses regarding reduced time spent on collection of firewood. This was further cross checked during the onsite visit when the households having the ICS were asked about the average reduction in time in collecting wood and all of the end users agreed that time was saved considerably as less firewood was needed to cook compared to the baseline.	

GS400 POA VERIFICATION			
		VPA#	Value (%)
		VPA 04	64%
		VPA 05	62%
		VPA 07	66%
		VPA 08	68%
		VPA 11	64%
		VPA 13	73%
		VPA 17	86%
		VPA 18	83%
		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	None		
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD/1/ and VPA-DDs/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.		

SDG 7: Access to affordable and clean energy (Number of operating ICS units under Project), ACSProject, Number

Relevant SDG Indicator	SDG7: Affordable and Clean Energy		
Means of verification	Criteria/Requirements	VVB Assessment	
	Measuring /Reading /Recording frequency	Continuously	
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the PoA-DD/1/ and VPA-DDs/2/.	
	How were the values in the monitoring report verified?	The post monitoring records/8/19/ were checked to identify as part of the assessment as well as during the interviews conducted with the 11 selected beneficiaries during site visit/51/ the intended beneficiaries who have access to affordable, reliable and modern energy services. Since the usage survey determines the	

		usage rate for ICS, the value of the parameter based on the usage survey was accepted and are as follows as per the VPAs:																											
		<table border="1"> <thead> <tr> <th>VPA#</th> <th>Model/State</th> <th>Value (Number)</th> </tr> </thead> <tbody> <tr> <td>VPA 04</td> <td>Smart/KA</td> <td>17,127</td> </tr> <tr> <td>VPA 05</td> <td>Smart/KA</td> <td>11,013</td> </tr> <tr> <td>VPA 07</td> <td>Smart/KA Smart/CG Smart/MP Smart/TN</td> <td>17,036</td> </tr> <tr> <td>VPA 08</td> <td>Smart/KA</td> <td>14,228</td> </tr> <tr> <td>VPA 11</td> <td>Smart/KA Jumbo/KA Jumbo/KL Smart/MH Powergram/TN</td> <td>9,005</td> </tr> <tr> <td>VPA 13</td> <td>Smart/KA</td> <td>19,809</td> </tr> <tr> <td>VPA 17</td> <td>Jumbo/KA</td> <td>23,152</td> </tr> <tr> <td>VPA 18</td> <td>Jumbo/KA Smart/KA</td> <td>21,648</td> </tr> </tbody> </table>	VPA#	Model/State	Value (Number)	VPA 04	Smart/KA	17,127	VPA 05	Smart/KA	11,013	VPA 07	Smart/KA Smart/CG Smart/MP Smart/TN	17,036	VPA 08	Smart/KA	14,228	VPA 11	Smart/KA Jumbo/KA Jumbo/KL Smart/MH Powergram/TN	9,005	VPA 13	Smart/KA	19,809	VPA 17	Jumbo/KA	23,152	VPA 18	Jumbo/KA Smart/KA	21,648
	VPA#	Model/State	Value (Number)																										
	VPA 04	Smart/KA	17,127																										
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	VPA 07	Smart/KA Smart/CG Smart/MP Smart/TN	17,036																										
	VPA 08	Smart/KA	14,228																										
	VPA 11	Smart/KA Jumbo/KA Jumbo/KL Smart/MH Powergram/TN	9,005																										
	VPA 13	Smart/KA	19,809																										
	VPA 17	Jumbo/KA	23,152																										
VPA 18	Jumbo/KA Smart/KA	21,648																											
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	None																												
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD/1/, and registered VPA-DDs/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.																												

SDG 8: Quantitative Employment and income generation, QE IG, Number

Relevant SDG Indicator	SDG 8: Decent Work and Economic Growth	
Means of verification	Criteria/Requirements	VVB Assessment

	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 to the PoA-DD/1/ and VPA-DDs/2/.																		
	How were the values in the monitoring report verified?	<p>The employment contract /31/ were cross checked for all contracted employees/31/. Based on the documentary evidence provided by CME, this value was verified and accepted.</p> <p>The verified values are thus:</p> <table border="1"> <thead> <tr> <th>VPA#</th><th>Value</th></tr> </thead> <tbody> <tr><td>VPA 04</td><td>30</td></tr> <tr><td>VPA 05</td><td>93</td></tr> <tr><td>VPA 07</td><td>60</td></tr> <tr><td>VPA 08</td><td>30</td></tr> <tr><td>VPA 11</td><td>48</td></tr> <tr><td>VPA 13</td><td>75</td></tr> <tr><td>VPA 17</td><td>30</td></tr> <tr><td>VPA 18</td><td>30</td></tr> </tbody> </table>	VPA#	Value	VPA 04	30	VPA 05	93	VPA 07	60	VPA 08	30	VPA 11	48	VPA 13	75	VPA 17	30	VPA 18	30
	VPA#	Value																		
	VPA 04	30																		
VPA 05	93																			
VPA 07	60																			
VPA 08	30																			
VPA 11	48																			
VPA 13	75																			
VPA 17	30																			
VPA 18	30																			
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	None																			
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD/1/ and VPA-DDs/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.																			

E.5.5. Implementation of sampling plan

Means of verification	The sampling plan was implemented by the CME in accordance with the Gold Standard methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 3.1/09/, and the CDM EB 110, Annex 1, Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities/25/. Two different sample sets were picked from population serviced under the VPA 04, 05, 07, 08, 11, 13, 17 & VPA 18 viz., Usage Surveys of Cookstoves and Project KPTs. Thus, the project database with the demographic cohorts identified during the sampling survey serves along with the user age (whether non-
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beneficiary, beneficiary, and user for last 1 year and more) as the sample frames for the project population.

Since the VPA's covers various state of India and various model of stove is distributed in the population, the sampling has been conducted for each state separately. Population with each state is reasonably considered homogenous. Therefore, the approach of simple random sampling for every sampling frame is acceptable.

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 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

Sustainability Surveys:

1. BSA/HHS- Proportion of population living in households with access to basic services
2. SPM_{HH}-- Air Quality in project households
3. HHTS- Time saved per household
4. AACS_{HH}-- Number of households and institutions having access to affordable, reliable and modern energy services
5. QE,IG- Quantitative Employment and income generation

Monitoring survey (by CME) duration:

The monitoring survey (field survey / tests) was carried out by CME representatives between following duration for the current monitoring period.

For Monitoring Period: 01/01/2021 to 31/12/2021:

VPA 04:

Survey Type	Monitoring dates	Monitoring frequency	Monitoring survey applicable for this MP?
Usage and Habit Survey	10/01/2022 to 03/02/2022	Annual	Yes
Project KPT	July/August 2021	Biennial	Yes

VPA 07:

Survey Type	Monitoring dates	Monitoring frequency	Monitoring survey applicable for this MP?
Usage and Habit Survey	03/01/2022 to 23/01/2022	Annual	Yes
Project KPT	July/August	Biennial	Yes

	2021		
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VPA 08:

Survey Type	Monitoring dates	Monitoring frequency	Monitoring survey applicable for this MP?
Usage and Habit Survey	04/01/2022 to 07/02/2022	Annual	Yes
Project KPT	July/August 2021	Biennial	Yes

VPA 17:

Survey Type	Monitoring dates	Monitoring frequency	Monitoring survey applicable for this MP?
Usage and Habit Survey	10/01/2022 to 27/01/2022	Annual	Yes
Project KPT	July/August 2021	Biennial	Yes

VPA 18:

Survey Type	Monitoring dates	Monitoring frequency	Monitoring survey applicable for this MP?
Usage and Habit Survey	14/01/2022 to 27/01/2022	Annual	Yes
Project KPT	July/August 2021	Biennial	Yes

For Monitoring Period: 27/06/2020 to 31/12/2021:
VPA 05:

Survey Type	Monitoring dates	Monitoring frequency	Monitoring survey applicable for this MP?
Usage and Habit Survey	year 1 (05/07/2021 to 20/07/2021) year 2 (04/01/2022 to 20/02/2022)	Annual	Yes
Project KPT	July/August 2021	Biennial	Yes

VPA 11:

Survey Type	Monitoring dates	Monitoring frequency	Monitoring survey applicable

			for this MP?
Usage and Habit Survey	year 1 (05/07/2021 to 06/08/2021) year 2 (03/01/2022 to 12/02/2022)	Annual	Yes
Project KPT	July/August 2021	Biennial	Yes

VPA 13:

Survey Type	Monitoring dates	Monitoring frequency	Monitoring survey applicable for this MP?
Usage and Habit Survey	year 1 (03/07/2021 to 25/07/2021) year 2 (04/01/2022 to 25/01/2022)	Annual	Yes
Project KPT	July/August 2021	Biennial	Yes

As evident from tables above, two usage surveys were conducted for VPAs with monitoring period 27/06/2020 to 31/12/2021. This ensures that frequency of annual monitoring for the parameter is met. The approach was found suitable for the duration of monitoring period, which is longer than 1 year.

Thus, it is confirmed that monitoring survey 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. Usage survey /42/ was done to determine usage and changes in circumstances experienced following the ICS project's deployment. The sample size was determined using the TPDDTEC Version 3.1 guideline/09/, which indicates that for a group size more than 1000, a minimum sample size of 100 is required for such a survey. Using MS Excel random selection algorithm, CME drew samples at random from the Monitoring Database. The representation of different age groups of distribution was also considered with 30 samples from each vintage picked in accordance with methodological sampling requirements. To ensure accurate representation of the entire population, the usage surveys were conducted on randomly chosen cookstoves dispersed across the project distribution boundary.

Kitchen Performance Tests (Project KPT): The KPT sample size determination was based on the guidelines provided in the TPDDTEC Version 3.1 methodology/09/ 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 for all the VPAs. This resulted in a precision of 90/10 being met.

In case, the confidence/precision is not met for any parameter for improved cookstove, the upper or lower bound is conservatively applied to arrive at final values for the parameter, which is found in line and acceptable considering the provisions provided in TPDDTEC v3.1./09/.

	<p>It is noted that the average lifetime of cookstove model distributed in the VPAs, according to its technical specifications, is 5 years. However, the lifetime may vary from individual product to product depending on usage handling and other physical factors. Parameter Usage Rate ensures that non-operationality rate of project devices found in representative sample is accounted for in ER calculations. It is observed from the monitoring results for this parameter that the fraction of operational ICS in the VPAs have reduced since the previous monitoring periods, which can be attributed to older age of stoves making those more prone to damages and discontinuation of usage.</p> <p>Additionally, as already discussed in previous sections, CME conducts an annual monitoring for all end users as an additional QA/QC procedure to check the usage status of the project cookstove periodically, thus capturing non-functional or damaged devices, which are not included in calculation for emission reductions. It is noted that the overall number of the "installed_damaged" products has increased when compared to the previous annual monitoring survey results, which is verified from the credit tracker output files and is found reasonable.</p> <p>All parameters of interest are included in the ER spreadsheet for the VPA's. 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 corresponding to final Monitoring Report, 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 DDs/2/.

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

Means of verification	<p>The registered monitoring plan (in the VPA DDs/2/ and PoA DD/1/) does not state the calibration requirements for any of the parameter. 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.</p> <p>The devices used in this project activity is mentioned here</p> <p>Type – Digital Moisture Meter Accuracy Class - +/- 1% Serial number – TM157341, TM157285, TM28591, TM240016, TM28657, TM240017, TM28618, TM239929, TM157277 Calibration frequency – Annual Date of calibration – 19/02/2021 Validity – Until 18/02/2022</p> <p>Serial number – X014064, X014086, X013975, X014073, X014104, X014102, X014082, X014049, Calibration frequency – Annual Date of calibration – 16/12/2021 Validity – Until 15/12/2022</p> <p>Type - Weighing Scale Accuracy Class - +/- 0.5 grams</p>
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	<p>Serial number – WS00120, WS00123, WS12012, WS00132, WS00156, WS00151, WS00153, WS00436, WS00136, Calibration frequency – Annual Date of calibration – 15/02/2021 Validity – Until 14/02/2022</p> <p>Serial number – WB01, WB02, WB03, WB04, WB06, WB07, WB08 Calibration frequency – Annual Date of calibration – 17/12/2021 Validity – Until 16/12/2022</p> <p>It is noteworthy that registered monitoring plan does not specify any calibration frequency however, CME has maintained an annual frequency. All the monitoring surveys took place in the days when all the equipment were under calibration.</p>
Findings	CAR#04 raised and resolved
Conclusion	The verification team confirm 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/15//16/.

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	<p><u>1- SDG-13: Climate Action</u></p> <p>The equations used were found consistent with the PoA DD/1/, VPA DDs/2/ and the applied methodology TPDDTEC, version 3.1/9/</p> <p>Using TPDDTEC-- Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 3.1/9/, "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> $eR_y = \sum_{b,p} (N_{p,y} * U_{p,y} * P_{p,b,y} * NCV_{b, fuel} * (f_{NRB,b, y} * EF_{fuel, CO2} + EF_{fuel, nonCO2})) - \sum LE_{p,y} \quad \textbf{(Eq.3)}$ <p>Where: $\sum_{b,p}$: Sum over all relevant (baseline b/project p) couples.</p> <p>$N_{p,y}$: Cumulative number of project technology – days included in the project database for project scenario p against baseline scenario b in year y</p> <p>$P_{p,b,y}$: Specific fuel savings for an individual technology of project p against an individual technology of baseline b in year y,(tons/day).</p> <p>$F_{NRB,b,y}$: Fraction of biomass used in year y for baseline scenario b that can</p>
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be established as non – renewable biomass (drop this term from the equation when using a fossil fuel baseline scenario).

$NCV_{b,fuel}$: Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton).

$EF_{b,fuel, CO_2}$: CO_2 emission factor of the fuel that is substituted or reduced. 112 t CO_2 /TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel.

$EF_{b,fuel, non\ CO_2}$: Non – CO_2 emission factor of the fuel that is reduced.

$LF_{p,y}$: Leakage for project scenario p in year y (t CO_2e /yr).

Sample calculation of VPA 24 jumbo stove karnataka:

$$ER_y = 8,159,575 * 0.61 * (0.00699 - 0.0034) * 0.0156 * (0.86 * 112 + 37.25) - 0$$

$$= 36,688 \text{ t}CO_2e$$

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

- 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.
- The NRB or fossil fuels saved under the project activity are used by non-project users who previously used lower emitting energy sources.
- 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.
- 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 section 6 of TPDDTEC (v.3.1)/09/ as the project involves installation of new systems with high efficiency and hence leakage emission is considered zero.

b) SDG-1: No Poverty

$$SDG\ 1\ (Net\ Benefit) = BSA_{project} - BSA_{Baseline}$$

Where:

$BSA_{Baseline}$ = Number of ICS distributed in baseline = 0

$BSA_{project}$ = Number of ICS distributed in project = 21,000

VPA#	$BSA_{Project}$	$BSA_{Baseline}$	SDG 1 (Net Benefit)
VPA 04	29,937	0	29,937
VPA 05	19,963	0	19,963
VPA 07	28,495	0	28,495

VPA 08	23,337	0	23,337
VPA 11	14,220	0	14,220
VPA 13	27,000	0	27,000
VPA 17	26,921	0	26,921
VPA 18	26,080	0	26,080

c) SDG-3: Good health and well-being

$$\text{SDG 3 (Net Benefit)} = \text{SPM}_{\text{HH,project}} - \text{SPM}_{\text{HH,Baseline}}$$

Where:

$\text{SPM}_{\text{HH,Baseline}}$ % HH reporting reduction in smoke while cooking on improved stove in baseline

$\text{SPM}_{\text{HH,Project}}$ % HH reporting reduction in smoke/ while cooking on improved stove in Project

VPA#	$\text{SPM}_{\text{HH,Project}}$	$\text{SPM}_{\text{HH,Baseline}}$	SDG 3 (Net Benefit)
VPA 04	64%	0	64%
VPA 05	62%	0	62%
VPA 07	66%	0	66%
VPA 08	68%	0	68%
VPA 11	64%	0	64%
VPA 13	73%	0	73%
VPA 17	86%	0	86%
VPA 18	83%	0	83%

d) SDG-5: Gender Equality

$$\text{SDG 5 (Net Benefit)} = \text{HHTS}_{\text{Project}} - \text{HHTS}_{\text{Baseline}}$$

Where:

$\text{HHTS}_{\text{baseline}}$ = % HH reporting time saving from fuel collection due to reduced fuel consumption in baseline

$\text{HHTS}_{\text{Project}}$ = % HH reporting time saving from fuel collection due to reduced fuel consumption in Project

VPA#	$\text{HHTS}_{\text{Project}}$	$\text{HHTS}_{\text{Baseline}}$	SDG 5 (Net Benefit)
VPA 04	64%	0	64%
VPA 05	62%	0	62%
VPA 07	66%	0	66%
VPA 08	68%	0	68%
VPA 11	64%	0	64%
VPA 13	73%	0	73%
VPA 17	86%	0	86%
VPA 18	83%	0	83%

e) SDG-7: Affordable clean energy

$$\text{SDG 7 (Net Benefit ICS)} = \text{ACS}_{\text{project}} - \text{ACS}_{\text{Baseline}}$$

Where:

$\text{ACS}_{\text{baseline}}$ Access to affordable and clean energy (Number of operating

ICS units under baseline)

ACS_{project} Access to affordable and clean energy (Number of operating ICS units under Project)

SDG 7 (Net Benefit SLS) = ACS_{project} – ACS_{Baseline}

VPA#	ACS _{Project}	ACS _{baseline}	SDG 7 (Net Benefit)
VPA 04	29,937	0	29,937
VPA 05	11,013	0	11,013
VPA 07	17,036	0	17,036
VPA 08	14,228	0	14,228
VPA 11	9,005	0	9,005
VPA 13	19,809	0	19,809
VPA 17	23,152	0	23,152
VPA 18	21,648	0	21,648

f) SDG-8: Decent Work

The SDG impact is calculated as below:

SDG 8 (Net Benefit) = QE IG_{Project} – QE IG_{Baseline}

Where:

QE IG_{Baseline} Quantative Employment and income generation (Number of person (male or female) hired under baseline)

QE IG_{Project} Quantative Employment and income generation (Number of person (male or female) hired under project)

VPA#	ACS _{Project}	ACS _{baseline}	SDG 8 (Net Benefit)
VPA 04	30	0	30
VPA 05	93	0	93
VPA 07	60	0	60
VPA 08	30	0	30
VPA 11	48	0	48
VPA 13	75	0	75
VPA 17	30	0	30
VPA 18	30	0	30

Detailed assessment of all the parameters used to calculate emission reductions is provided under section E.5.4.2.

The calculations presented in the Monitoring Report /41/ and the corresponding ER sheet /5/ were found appropriate and complying with provisions prescribed in the registered monitoring plan/2/ of the respective VPA-DDs/2/, PoA-DD/1/ and applied methodology/9/.

Findings

None

Conclusion

The verification team verified that

- A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.5.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet/5/ of final Monitoring Report/40/.
- 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.
- The calculations of baseline emissions as presented in the

	<p>corresponding ER calculations sheet/5/ of final Monitoring Report/41/ were checked and found to be consistent with the formulae and methods described in the registered monitoring plan of VPA-DDs/2/, registered PoA-DD/1/ and the applied methodology/9/.</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/33/ 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/1/.</p>
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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> The equation for calculating emission reductions already accounts for project emissions.</p> <p>b) <u>SDG-1: No Poverty</u> The SDG impacts for the project were 29,937(VPA 04), 19,963(VPA 05), 28,495(VPA 07), 23,337(VPA 08), 14,220(VPA 11), 27,000(VPA 13), 26,921 (VPA 17) and 26,080(VPA 18) users confirmed to improve savings.</p> <p>c) <u>SDG-3: Good health and well-being</u> The SDG impacts for the project were:</p> <ul style="list-style-type: none"> 64%(VPA 04), 62%(VPA 05), 66%(VPA 07), 68%(VPA 08), 64%(VPA 11), 73%(VPA 13), 86%(VPA 17) and 83%(VPA 18) of respondents confirmed to be exposed to less smoke and/or health problems <p>d) <u>SDG-5: Gender Equality</u> The SDG impacts estimated for the project were:</p> <ul style="list-style-type: none"> 64%(VPA 04), 62%(VPA 05), 66%(VPA 07), 68%(VPA 08), 64%(VPA 11), 73%(VPA 13), 86%(VPA 17) and 83%(VPA 18) of users confirmed that fuel collection is less time consuming <p>e) <u>SDG-7: Affordable clean energy</u> The SDG impacts estimated for the project were the distribution of 17,127(VPA 04), 11,013(VPA 05), 17,036(VPA 07), 14,228(VPA 08), 9,005(VPA 11), 19,809(VPA 13), 23,152(VPA 17) and 21,648(VPA 18) improve cookstoves.</p> <p>f) <u>SDG-8: Decent Work</u> The SDG impacts estimated for the project was:</p> <ul style="list-style-type: none"> 30 persons(VPA 04), 93 persons(VPA 05), 60 persons(VPA 07) and 30(VPA 08), 48 persons(VPA 11), 75 persons(VPA 13), 30 persons(VPA 17) and 30(VPA 18) were hired under this project.
Findings	None
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</p>

	presented in the corresponding ER calculations sheet/5/ of final Monitoring Report /41/.
	b) The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5.4.2 of this report.

E.5.7.3. Calculation of leakage

Means of verification	The 4 conditions under which the leakage should be accounted for are not observed in this project activity. The detailed discussion on the same is provided in section E.5.4.2 above under the parameter: SDG13: LE _{p,y}
Findings	None
Conclusion	A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.5.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet/5/ of final Monitoring Report /41/. The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5.4.2 of this report.

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

Means of verification	SDGs Targeted	SDG Impact	Baseline estimate	Project estimate	Net benefit
	13	Climate Action	VPA 4- 44,184 VPA 5- 50,964 VPA 7- 44,142 VPA 8- 38,573 VPA 11-34,040 VPA13-93,988 VPA17- 68,813 VPA18- 66,392	0 tCO ₂ e VERs (for all VPAs)	VPA4- 44,620 VPA5- 68,446 VPA7- 52,851 VPA8- 41,172 VPA11-59,473 VPA 13- 152,786 VPA17- 68,813 VPA18- 66,392
	1	No Poverty (ICS)	0	VPA 4- 29,937 VPA 5- 19,963 VPA 7- 28,495 VPA 8- 23,337 VPA 11- 14,220 VPA 13- 27,000 VPA 17- 26,921 VPA 18- 26,080	VPA 4-29,937 VPA 5-19,963 VPA 7-28,495 VPA 8-23,337 VPA 11-14,220 VPA 13-27,000 VPA 17-26,921 VPA 18-26,080
	3	Good Health and	0%	VPA 4-64% VPA 5-61%	VPA 4 - 64% VPA 5 - 61%

		well being		VPA 7-67% VPA 8-68% VPA 11-64% VPA 13-73% VPA 17-86% VPA 18-83%	VPA 7 - 67% VPA 8 - 68% VPA 11 - 64% VPA 13 - 73% VPA 17 - 86% VPA 18 - 83%
	5	Gender Equality	0%	VPA 4-64% VPA 5-61% VPA 7-67% VPA 8-68% VPA 11-64% VPA 13-73% VPA 17-86% VPA 18-83%	VPA 4 - 64% VPA 5 - 61% VPA 7 - 67% VPA 8 - 68% VPA 11 - 64% VPA 13 - 73% VPA 17 - 86% VPA 18 - 83%
	7	Affordable and clean energy (ICS)	0	VPA 4-17,127 VPA 5-11,013 VPA 7-17,036 VPA 8-14,228 VPA 11-9,005 VPA 13-19,809 VPA 17-23,152 VPA 18-21,648	VPA 4 - 17,127 VPA 5 - 11,013 VPA 7 - 17,036 VPA 8 - 14,228 VPA 11- 9,005 VPA 13- 19,809 VPA 17-23,152 VPA 18-21,648
	8	Decent work and economic growth	0	VPA 4- 30 VPA 5- 93 VPA 7- 60 VPA 8- 30 VPA 11- 48 VPA 13- 75 VPA 17- 30 VPA 18- 30	VPA 4- 30 VPA 5- 93 VPA 7- 60 VPA 8- 30 VPA 11- 48 VPA 13- 75 VPA 17- 30 VPA 18- 30
	The calculation methods applied for all the SDG impacts were checked with PoA-DD/1/ and VPA-DDs/2/. The verification team confirms that the stated figures were checked and found acceptable.				
Findings	No findings				
Conclusion	The verification team confirms that				

	<p>a) The complete data was available and is duly reported.</p> <p>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);</p> <p>c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed;</p> <p>d) Appropriate emission factors, IPCC default factors and other reference values were correctly applied.</p>
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E.6. Voluntary project activity

E.6.1. Compliance of the VPA implementation with the included VPA design document

Means of verification	The reporting for this issuance has been done technology-wise, thus section E.6 shall be dealing with distribution of solar CEPs and its compliance with registered PoA-DD/1/, VPA-DDs/2/ and applicable standard. VPAs (GS11476 (VPA 04), GS11505 (VPA 05), GS11477 (VPA 07), GS11478 (VPA 08), GS11481 (VPA 11), GS11483 (VPA 13) described in this section targets the promotion, distribution and sale of different models of solar lighting systems implemented in this PoA. There were no solar light distributions in GS11451 (VPA 17), and GS11486 (VPA 18). Micro Energy Credits Corporation Private Limited is the Coordinating and Managing Entity (CME) for the implementation of VPAs. The CME coordinates and manages each Partner Organization (PO)/VPA Implementer and assists them in implementing each element of the monitoring plan.				
	Solar Lighting systems:				
	Solar Lighting systems VPA Ref. #	GS 11476 (VPA 04)	GS 11505 (VPA 05)	GS 11477 (VPA 07)	GS 11478 (VPA 08)
	Location / State	Karnataka	Karnataka	Assam, Bihar, Jharkhand, Karnataka, Odisha, Tripura, West Bengal, Uttar Pradesh	Karnataka
	CEP Type	SLS	SLS	SLS	SLS
	CEP Model	There are various models of Solar lighting systems distributed in the VPA, all reviewed and found acceptable under applied methodology	There are various models of Solar lighting systems distributed in the VPA, all reviewed and found acceptable under applied methodology	There are various models of Solar lighting systems distributed in the VPA, all reviewed and found acceptable under applied methodology	There are various models of Solar lighting systems distributed in the VPA, all reviewed and found acceptable under applied methodology

	VPA Implementer / PO	SKDRDP	SKDRDP, ESAF, Sarala, Muthoot	SKDRDP, Bandhan	SKDRDP
	Total Quantity Sold / Disseminated	29,937	11,013	17,036	14,228
	Maximum Estimated Qty CEPs in CPA ((for comparable year of distribution)	56,338	86,220	126,920	35,349
	Estimated ERs (comparable period) (tCO2e)	5,183	12,018	11,677	3,648
	Actual ERs from the CEP Type (tCO2e)	436	17,482	8,709	2,599
	VPA Ref. #	GS 11481 (VPA 11)		GS 11483 (VPA 13)	
	Location / State	Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu and Uttar Pradesh		Bihar, Odisha, Uttar Pradesh, Assam, West Bengal, Chhattisgarh, Jharkhand and Madhya Pradesh	
	CEP Type	SLS		SLS	
	CEP Model	There are various models of Solar lighting systems distributed in the VPA, all reviewed and found acceptable under applied methodology		There are various models of Solar lighting systems distributed in the VPA, all reviewed and found acceptable under applied methodology	
	VPA Implementer / PO	Muthoot Microfin Limited (MML)		Sarala Development and Microfinance Private Limited, Simpa Networks and Greenway Appliances, Arohan Financial Services Private Limited.	
	Total Quantity Sold / Disseminated	-		-	
	Maximum Estimated Qty CEPs in CPA ((for comparable year of distribution)	24,258		155,748	
	Estimated ERs (comparable period) (tCO2e)	126,632		1,037,016	
	Actual ERs from	25,433		58,798	

	the CEP Type (tCO ₂ e)																							
	<p>The solar lighting systems 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. The technical specifications of SLS model were verified through the specifications provided by technology suppliers /22/ and found to be consistent with the monitoring report. The 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-VPAs double counting.</p> <p>During onsite surveys, the end users were asked if we can see the product installed to confirm the model in use. It has been checked by the verification team that the verified VPAs are way below the threshold /02/ for their respective methodologies:</p> <table border="1"> <thead> <tr> <th>VPA</th> <th>Capacity (MW)/ ERs (tCO₂e)</th> <th>Threshold (MW)/ (tCO₂e)</th> </tr> </thead> <tbody> <tr> <td>GS11476 (VPA 04)</td> <td>436 tCO₂e</td> <td>60,000 tCO₂e</td> </tr> <tr> <td>GS11505 (VPA 05)</td> <td>17,482 tCO₂e</td> <td>60,000 tCO₂e</td> </tr> <tr> <td>GS11477 (VPA 07)</td> <td>8,709 tCO₂e</td> <td>60,000 tCO₂e</td> </tr> <tr> <td>GS11478 (VPA 08)</td> <td>2,599 tCO₂e</td> <td>60,000 tCO₂e</td> </tr> <tr> <td>GS11481 (VPA 11)</td> <td>25,433 tCO₂e</td> <td>60,000 tCO₂e</td> </tr> <tr> <td>GS11483 (VPA 13)</td> <td>0.31 MW</td> <td>15 MW</td> </tr> </tbody> </table>			VPA	Capacity (MW)/ ERs (tCO ₂ e)	Threshold (MW)/ (tCO ₂ e)	GS11476 (VPA 04)	436 tCO ₂ e	60,000 tCO ₂ e	GS11505 (VPA 05)	17,482 tCO ₂ e	60,000 tCO ₂ e	GS11477 (VPA 07)	8,709 tCO ₂ e	60,000 tCO ₂ e	GS11478 (VPA 08)	2,599 tCO ₂ e	60,000 tCO ₂ e	GS11481 (VPA 11)	25,433 tCO ₂ e	60,000 tCO ₂ e	GS11483 (VPA 13)	0.31 MW	15 MW
	VPA	Capacity (MW)/ ERs (tCO ₂ e)	Threshold (MW)/ (tCO ₂ e)																					
	GS11476 (VPA 04)	436 tCO ₂ e	60,000 tCO ₂ e																					
GS11505 (VPA 05)	17,482 tCO ₂ e	60,000 tCO ₂ e																						
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GS11478 (VPA 08)	2,599 tCO ₂ e	60,000 tCO ₂ e																						
GS11481 (VPA 11)	25,433 tCO ₂ e	60,000 tCO ₂ e																						
GS11483 (VPA 13)	0.31 MW	15 MW																						
<p>All technical specifications/22/ were reviewed and SLS models were found to be meeting the applied methodology requirements and PoA eligibility criteria of PoA and therefore, found acceptable by the verification team, as provisioned in section A.3 of VPA-DDs/2/.</p>																								
Findings	No Findings were raised.																							
Conclusion	<ul style="list-style-type: none"> • The verification team is of the opinion that physical features of the VPAs have been implemented in accordance with the VPA-DDs/2/. • It is also confirmed, through the review of the supporting documentation, that physical features of the component VPAs have been implemented in accordance with the VPA-DDs/2/. • The VPAs was also found to be completely operational in line with the VPA-DDs/2/. • The information provided in the relevant sections of the monitoring report are appropriately describe the implementation and operational status of the PoA. 																							

E.6.2. Post-Design Certification changes

E.6.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

Not Applicable

E.6.2.2. Corrections

Not Applicable

E.6.2.3. Changes to the start-date of the crediting period

Not Applicable

E.6.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

Not Applicable as this is the first monitoring period of the VPA under GS.

E.6.2.5. Changes to project design of approved project

There are no changes made during this monitoring period.

E.6.3. Compliance of the registered monitoring plan with applied methodologies and standardized baselines

Means of verification	The monitoring plan contained in the VPA-DDs/2/ was reviewed in relation to the monitoring requirements of the applied methodologies AMS.I.A version 14.0/10/ and AMS-III.AR version 7/11/, 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-DDs/2/ contains all the required parameters to be monitored in the context of the VPAs design and description and allows determination of emission reductions according to the PoA DD/1/ and applied methodology/10/11/.
Findings	No findings raised.
Conclusion	The monitoring plan is in line with the approved methodology, Gold Standard Simplified Methodology AMS I.A Version 14.0/10/, AMS-III.AR Version 07/11/, that is included in the registered PoA DD/1/ and VPA-DDs/2/. The monitoring plan is in accordance with the applied methodology /10/11/ that is included in the VPA-DDs/2/.

E.6.4. Compliance of monitoring activities with the registered monitoring plan.

E.6.4.1. Data and parameters fixed ex ante or at renewal of crediting period

For the VPA 04, 05, 07, 08 & VPA 11 (AMS-III.AR)

SDG 13: The Lamp Emission factor, DV

Means verification	<p>Applicable only in VPA 04, 05, 07, 08 & VPA 11</p> <p>DV -- The value of the parameter was sourced from default value prescribed in AMS-III.AR. (v.7)/11/. The value of this parameter considered is mentioned below as per VPA-DDs.</p> <table border="1"> <thead> <tr> <th>VPA Number</th><th>Value</th></tr> </thead> <tbody> <tr> <td>VPA 04</td><td>0.092 tCO₂e/Lamp</td></tr> <tr> <td>VPA 05</td><td>0.092 tCO₂e/Lamp</td></tr> <tr> <td>VPA 07</td><td>0.092 tCO₂e/Lamp</td></tr> <tr> <td>VPA 08</td><td>0.092 tCO₂e/Lamp</td></tr> <tr> <td>VPA 11</td><td>0.092 tCO₂e/Lamp</td></tr> </tbody> </table>	VPA Number	Value	VPA 04	0.092 tCO ₂ e/Lamp	VPA 05	0.092 tCO ₂ e/Lamp	VPA 07	0.092 tCO ₂ e/Lamp	VPA 08	0.092 tCO ₂ e/Lamp	VPA 11	0.092 tCO ₂ e/Lamp
VPA Number	Value												
VPA 04	0.092 tCO ₂ e/Lamp												
VPA 05	0.092 tCO ₂ e/Lamp												
VPA 07	0.092 tCO ₂ e/Lamp												
VPA 08	0.092 tCO ₂ e/Lamp												
VPA 11	0.092 tCO ₂ e/Lamp												
Findings	No findings were raised.												
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /5/6/7/8/52/53/54/55are consistent with the approach given in VPA-DDs/2/. Hence the applied value is correct and justified.												

For the VPA 13, 17 and 18 (AMS-I.A)

SDG13: The specific luminous efficiency of kerosene when burnt in a kerosene lantern, in Lumens/ W

Means verification	<p>Applicable only in VPA 13</p> <p>LE_{Ker}-- The value of this parameter is considered is mentioned below as per VPA DDs/2/. This was checked with the revised accepted PoA-DD and included VPA-DDs/2/.</p> <p>This value is used towards determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs.</p> <table border="1"> <thead> <tr> <th>VPA Number</th><th>Value</th></tr> </thead> <tbody> <tr> <td>VPA 13</td><td>0.13 Lumens/ W</td></tr> <tr> <td>VPA 17</td><td>0.13 Lumens/ W</td></tr> <tr> <td>VPA 18</td><td>0.13 Lumens/ W</td></tr> </tbody> </table>	VPA Number	Value	VPA 13	0.13 Lumens/ W	VPA 17	0.13 Lumens/ W	VPA 18	0.13 Lumens/ W
VPA Number	Value								
VPA 13	0.13 Lumens/ W								
VPA 17	0.13 Lumens/ W								
VPA 18	0.13 Lumens/ W								
Findings	No findings were raised.								
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /5/6/7/8/52/53/54/55are consistent with the approach given in VPA-DDs/2/. Hence the applied value is correct and justified.								

SDG13: The specific CO₂ emissions of kerosene, tCO₂e/ GJ

Means verification	<p>Applicable only in VPA 13</p> <p>EF_{Ker}-- The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.5-- Default emission factors for stationary combustion in the</p>
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	<p>residential and agriculture/forestry/fishing/fishing farms categories/32/. This value is used towards determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs.</p> <table border="1"> <thead> <tr> <th>VPA Number</th><th>Value</th></tr> </thead> <tbody> <tr> <td>VPA 13</td><td>0.0719 tCO₂/GJ</td></tr> <tr> <td>VPA 17</td><td>0.0719 tCO₂/GJ</td></tr> <tr> <td>VPA 18</td><td>0.0719 tCO₂/GJ</td></tr> </tbody> </table>	VPA Number	Value	VPA 13	0.0719 tCO ₂ /GJ	VPA 17	0.0719 tCO ₂ /GJ	VPA 18	0.0719 tCO ₂ /GJ
VPA Number	Value								
VPA 13	0.0719 tCO ₂ /GJ								
VPA 17	0.0719 tCO ₂ /GJ								
VPA 18	0.0719 tCO ₂ /GJ								
Findings	No findings were raised.								
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /5/6/7/8/52/53/54/55are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.								

SDG13: Standard normal for a confidence interval of 90%

Means verification of	<p>Applicable only in VPA 13</p> <p>z-- The value of this parameter is considered is mentioned below as per VPA DDs/2/. This was checked with the revised accepted PoA-DD/01/ and included VPA-DDs/2/. This value is used towards determination of baseline emissions.</p> <p>This value is used for the determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs.</p> <table border="1"> <thead> <tr> <th>VPA Number</th><th>Value</th></tr> </thead> <tbody> <tr> <td>VPA 13</td><td>1.290, 1.645, 1.96</td></tr> <tr> <td>VPA 17</td><td>1.290, 1.645, 1.96</td></tr> <tr> <td>VPA 18</td><td>1.290, 1.645, 1.96</td></tr> </tbody> </table>	VPA Number	Value	VPA 13	1.290, 1.645, 1.96	VPA 17	1.290, 1.645, 1.96	VPA 18	1.290, 1.645, 1.96
VPA Number	Value								
VPA 13	1.290, 1.645, 1.96								
VPA 17	1.290, 1.645, 1.96								
VPA 18	1.290, 1.645, 1.96								
Findings	No findings were raised.								
Conclusion	The value mentioned in the Monitoring Report/41/ and Emission Reduction Spreadsheet/5/6/7/8/52/53/54/55are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.								

E.6.4.2. Data and parameters monitored (Carbon & SDG)
VPA 4,5,7,8,11- AMS-III.AR
SDG 13: Number of project lamps distributed to end users of type i with charging method j (N_{i,j}), Number of lights

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable

	<p>How were the values in the monitoring report verified?</p>	<p>The values reported in the final MR /12/ and ER sheet were verified through the output files of MEC Credit tracker platform provided by the CME.</p> <p>During the current monitoring period, ERs from the total of devices distributed have been calculated. Each device, and lamps therein, are considered operational for the first three years of its crediting period after which monitoring is required, which is found to be in line with VPA-DD and applied methodology AMS-III.AR version.</p> <p>The verified value for the number of total solar lighting systems in this monitoring period is provided in table below:</p> <table border="1" data-bbox="738 665 1450 963"> <thead> <tr> <th>VPA</th> <th>Total lamps</th> </tr> </thead> <tbody> <tr> <td>VPA 4</td> <td>56,342</td> </tr> <tr> <td>VPA 5</td> <td>86,220</td> </tr> <tr> <td>VPA 7</td> <td>126,504</td> </tr> <tr> <td>VPA 8</td> <td>35,349</td> </tr> <tr> <td>VPA 11</td> <td>242,588</td> </tr> </tbody> </table> <p>It was noted that any point during the monitoring period, the small-scale threshold for savings was not exceeded by the VPAs.</p> <p>The verification team has verified the SLS models distributed in the current monitoring period and found those to be consistent with the technical specifications provided by respective product suppliers/22/ and the PoA-DD requirements/4/. During the on-site audit, end-users were surveyed to verify the models installed. The information thus obtained was cross-checked against technical specifications of the device and it was confirmed if it matched with those.</p> <p>Each household was found to be given a specific unique number. These unique identifiers are used to establish that double counting doesn't occur, and all devices are traceable to the households those were distributed to. The verification team checked the uniqueness of solar CEPs across the VPA from the database using Microsoft Excel based tools (eg. Conditional formatting to identify duplicate entries). All entries were found to be unique.</p>	VPA	Total lamps	VPA 4	56,342	VPA 5	86,220	VPA 7	126,504	VPA 8	35,349	VPA 11	242,588
	VPA	Total lamps												
	VPA 4	56,342												
VPA 5	86,220													
VPA 7	126,504													
VPA 8	35,349													
VPA 11	242,588													
<p>If applicable, has the reported data been cross-checked with other available data?</p>	<p>Yes. The information provided in the VPA credit tracker Database was verified randomly with the sales receipt and loan document. The data was found consistently recorded.</p>													
<p>Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC</p>	<p>Solar light systems installation information was verified as maintained in the MEC tracker system that records the address of the households. It can be confirmed that management is ensuring the correct transfer of data and reporting of emission reductions and the necessary QA/QC processes are</p>													

	processes in place?	in place.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan and applied methodology.	

SDG 13: Grid factor in year y (GFy), Fraction

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Not applicable (Default value used)
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Not applicable (Default value used)
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	<p>The values reported in the final MR were verified from the methodology AMS-III.AR.</p> <p>As per the applied methodology AMS-III.AR para 21, Grid Factor in year y is equal to 1.0 when charging option defined in paragraph 3(a) is used. Para 3(a) of methodology is applicable to the VPAs i.e., the distributed project lamps are charged by a renewable energy system (photovoltaic system). It is also demonstrated at the time of VPA-inclusion and is cross checked during current verification from project database and on-site audit that the replaced lamps were kerosene lamps in line with para 8(a) of applied methodology and therefore it is assumed that all baseline emissions are from the consumption of fossil fuel (in this case, kerosene) for lighting.</p> <p>Therefore, for the current monitoring period default value 1.0 is considered for this parameter.</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?	It can be confirmed that management is ensuring the correct transfer of data and reporting of emission reductions and the necessary QA/QC processes are in place.
Findings	CAR#03 raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan and applied methodology.	

SDG 13: Dynamic baseline factor in year y (DBy), Fraction

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Not applicable (Default value used)
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Not applicable (Default value used)
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	<p>The values reported in the final MR were verified through the methodology AMS-III.AR.</p> <p>According to applied methodology AMS-III.AR, under para 21 and parameter table 5, dynamic baseline factor can be calculated as "default of 1.0 in the absence of relevant information" This methodological choice is confirmed at the time of inclusion of VPA as the applicable approach to determine parameter DBy.</p> <p>Therefore, for the current monitoring period default value 1.0 is considered for this parameter.</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?	It can be confirmed that management is ensuring the correct transfer of data and reporting of emission reductions and the necessary QA/QC processes are in place.
Findings	CAR#03 raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan and applied methodology.	

SDF 13: The percentage of project lamps distributed to end users that are operating and in service (OFy,i,j), Fraction

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Default value for three years. Determined based on survey conducted in year 3 for years 4-7
	Is measuring and reporting frequency in accordance with the monitoring plan and	Yes, measuring and reporting frequency is met

	monitoring methodology? (Yes / No)	
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	<p>According to applied methodology, if option-2 (para 18) is applied, all project lamps are assumed to operate for first three years from installation, This is also cross-verified from applied methodology according to which, percentage of project lamps distributed to end users that are operating and in service are assumed to be equal to 100 per cent for years 1, 2 and 3. Therefore, since CME has chosen option-2 from AMS-III.AR para 18 in CPA-DD, the percentage of project lamps distributed to end users that are operating and in service is acceptable as 100% for lamps installed less than 3 years ago. However, in case of the VPAs under this verification, the monitoring has been conducted based on sampling for all years of distribution, i.e. ex-post monitoring has been conducted irrespective of the year of installation. Since the approach is more proactive than the minimum requirements of the applied methodology and will not lead to any overestimation of the emission reductions, the approach is found acceptable.</p> <p>The calculation for determining the sample size were checked by the verification team and found to be appropriate and consistent with monitoring plan, as well as with Standard: Sampling and surveys for CDM project activities and programme of activities v.9.0.</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?	It can be confirmed that management is ensuring the correct transfer of data and reporting of emission reductions and the necessary QA/QC processes are in place.	
Findings	CL#03 raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan and applied methodology.	

VPA 13- AMS-I.A

SDG13: lumens output for each solar lamp n deployed as part of project activity (Ln), Lumens

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DDs/2/
	Monitoring equipment	Not applicable
	Calibration frequency /interval:	Not applicable
	How were the values in the monitoring report verified?	<p>The values reported in the final MR /41/ were verified through the technical specifications provided by the suppliers of the respective model.</p> <p>The verified value of this parameter for solar lighting systems sold/distributed under the relevant VPAs at the end of the current monitoring period is lower of Lumen output of installed system and 140.538 Lumen as per PoA-DD/1/ and VPA-DDs/2/ constraint. Additionally, each household in the database only receives one solar lighting system and if any of the households are found to have another SLS installed during quarterly monitoring, no emission reductions are claimed from those households.</p> <p>These measures ensure that no single household gets emission reductions higher than those that were validated at the time of PoA and VPAs registration (equivalent level of kerosene consumption in the baseline).</p> <p>The verification team has verified the lumen output of models disturbed in the current monitoring period and found to be consistent with the technical specifications provided by respective product suppliers. In case the SLS models have more than one setting for light intensity, the conservative value is considered in line with VPA-DDs/2/.</p> <p>The verification team also checked the type of solar lighting systems in all of the surveyed households during the onsite surveys. The information thus obtained was cross-checked against technical specifications</p>

		<p>of the device and it was confirmed if it matched.</p> <p>Specific to distribution of solar CEPs, each household is given a "user account identification number". This number can be used to establish that one household receives only one product since the number is unique and cannot be repeated. The verification team checked the uniqueness of "user account identification number" for solar CEPs across the VPA covered using conditional formatting and confirms that only a single solar device has been provided to each household. The assessment team has also verified the tracker output file provided by CME that includes consolidated list of all CEP sales made under the Programme and confirms that only 1 solar CEP has been implemented in a single household.</p>
	If applicable, has the reported data been cross-checked with other available data?	Type/ model of solar lighting systems given in ER sheets were further checked with the credit tracker output file/47/ during document review of the supporting documents shared by CME. No discrepancy in data was observed regarding models of solar lighting systems distributed.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	<p>Solar lighting systems installation information is maintained in the MEC tracker system that records address of the household. The tracker system is monitored continuously.</p> <p>It can be confirmed that management ensuring the correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place.</p>
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable
Findings	CL#02 raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/2/ (as per measurement methods and procedures to be applied) and applied methodology/10/11/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: Total number of solar lamps of type i that have been deployed in period a, Ni,a, Lamps

Relevant SDG Indicator	SDG13: Climate Action
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Means of verification	Criteria/Requirements	Assessment/Observation				
	Measuring /Reading /Recording frequency	Annual				
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DDs/2/				
	Monitoring equipment	Not applicable. The number in Credit Tracker Platform.				
	Calibration frequency /interval:	Not Applicable				
	How were the values in the monitoring report verified?	<p>The values reported in the final MR /41/ (and corresponding ER sheets /5/6/7/8/52/53/54/55/) were verified through the Credit Tracker Platform /44/, /46/ that records the name of the customer, loan account number, branch name address/ description of location, contact telephone number(s) (where available), unique client ID and date of first loan disbursement date. The entire database for the VPA included in the current monitoring period is presented in the ER sheet as VPA Database/5/6/7/8/52/53/54/55</p> <p>The verified value for solar systems sold/distributed under the VPAs at the end of the current monitoring period are:</p> <table border="1" data-bbox="884 1216 1458 1317"> <thead> <tr> <th>VPA#</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>VPA 13</td> <td>138,762</td> </tr> </tbody> </table>	VPA#	Value	VPA 13	138,762
	VPA#	Value				
	VPA 13	138,762				
If applicable, has the reported data been cross-checked with other available data?	Yes. The information provided in the VPA database/5/6/7/8/52/53/54/55/ and ER sheets/5/ was verified randomly with the sales receipt/ warranty cards/23/ and through interviews 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 facilitate accurate record keeping in their MIS system/Credit Tracker Platform.</p> <p>The sale process and record keeping was reviewed by conducting CME and PO interviews; the record keeping processes explained were found reliable.</p>					
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by	Not Applicable					

	Appendix 1 to the CDM Project Standard?	
Findings	CAR#01 was raised and closed	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/2/ (as per measurement methods and procedures to be applied) and applied methodology/10/11/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: Average number of days lamps of type i that have been deployed in period a were operating in period v, di,a,v, days

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DDs/2/
	Monitoring equipment	Not Applicable
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	<p>The credit tracker platform records the exact date of sale for solar lighting system that can be tracked by the implementing partners and CME. The value of this parameter calculated as the total days from date of installation of the SLS to the end date of monitoring period or the entire monitoring period, whichever is lesser. Individual number of days SLS have operated during the monitoring period is calculated and the average value is used for calculating the emission reductions. In the event of a non-functional CEP being identified during the monitoring, the number of crediting days for that device are considered '0'. It is noteworthy to see that apart from considering the methodological requirements for determination of this parameter value, an additional check on conservativeness of emission reduction estimation is also ensured by considering 0 crediting days for products identified as non-functional at any point during the quarterly or annual monitoring. This quarterly and annual monitoring is followed by CME.</p> <p>The value of the parameter for all the</p>

		<p>models distributed in each state of VPA reported in the MR is verified through the Credit Tracker Platform output file and found to be consistent. The dates of installations were also verified through sales receipts or installation cards /23/ of 66 randomly selected households for remote survey from the VPA with SLS distribution. The information obtained was consistent with dates provided in ER sheets/5/6/7/8/52/53/54/55/. It was thus confirmed that for households where distribution was done during the monitoring period (if any), emission reductions were only claimed for days passed since installation.</p> <p>The SLS model specific state-wise average values of parameter are equal to or lower than 365 days for year-1 and 188 days for year-2, which was found appropriate based on the evidences provided as mentioned above.</p>	
	If applicable, has the reported data been cross-checked with other available data?	The date of installation of the 11 randomly selected households per VPA for DOE onsite survey was further cross-checked with credit tracker screenshots/46/ of recorded details of these 11 households. The values provided were found to be consistent. The applied value does not exceed 365 which is the total number of operational days in the monitoring period. The verified average values were equal to this as per the model distributed and date of installation.	
	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 facilitate accurate record keeping in their MIS system/Credit Tracker Platform.</p> <p>The sale process and record keeping was reviewed by conducting CME and PO interviews; the record keeping processes explained were found reliable.</p>	
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable	
Findings	No findings		
Conclusion	The parameter has been monitored appropriately, in accordance with the		

	registered monitoring plan/1/2/ (as per measurement methods and procedures to be applied) and applied methodology/10/11/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.
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SDG13: Average operating hours of kerosene lamps in the baseline, H, Hours/ day

Relevant SDG Indicator	SDG13: Climate Action		
Means of verification	Criteria/Requirements	Assessment/Observation	
	Measuring /Reading /Recording frequency	Annual	
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line 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?	As per the applied methodology AMS I.A version 14/10/ and AMS-III.AR Version 7/11/ paragraph I "For the specific case of lighting devices a daily usage of 3.5 hours shall be assumed, unless it is demonstrated that the actual usage hours adjusted for seasonal variation of lighting is different based on representative sample survey (90% confidence interval +/-10% error) done for minimum of 90 days". For the current monitoring period default value of 3.5 hours/day is considered for this parameter for these VPAs.	
	If applicable, has the reported data been cross-checked with other available data?	The value reported in the ER calculation sheet /5/6/7/8/52/53/54/55/ was checked with MR/40 and applied methodology AMS I.A version 14/10/ and found to be consistent.	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the QA/QC procedures are in place. The data provided in applied methodology/10/ has been appropriately reported and used in ER calculation sheet/5/6/7/8/52/53/54/55/ and MR/41/.	
Findings	None		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1//2/ (as per measurement methods and procedures to be applied) and applied methodology /10/11/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

SDG13: Lamp failure rate: Share of lamps of lamp type i in checked sample group gi,v not operational in period v (LFRi,v), %

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line 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>This parameter is determined by CME/PO/Monitoring partner through the quarterly survey to confirm the usage status of all SLS. The results collected are recorded in the Credit Tracker Platform /44/46/.</p> <p>If a solar lighting system is found to be not in use or non-operational during the survey then the same is considered as "failed" during the entire monitoring period under concern. All SLSs distributed till the day of surveying are monitored.</p> <p>Lamp failure rate is calculated as:</p> $\text{LFR} = (\text{Number of failed lamps} / \text{Total number of lamps monitored})$ <p>The value of this parameter for different SLS models distributed during the current monitoring period is provided in the monitoring report /41/ and ER calculation sheets/5/6/7/8/52/53/54/55/.</p> <p>The verification team randomly selected 11 samples for VVB's onsite survey from the VPA covered in this request for issuance and found that all 11 surveyed SLSs for the VPA were operational (as confirmed by the end users). The results were consistent with the monitoring survey results provided in ER calculation sheet/5/6/7/8/52/53/54/55/ for the surveyed households.</p>
	If applicable, has the reported data been cross-checked with other available data?	The results were cross-checked with quarterly usage survey forms/42/ for the 11 households surveyed to ensure consistency of data. No discrepancies in data reporting of this

		parameter were observed. Additionally, the lamp failure rate values are also compared with values obtained from last monitoring period under CDM and it could be confirmed that for each sub-group the parameter value has increased (indicating increased number of failed lamps) since last monitoring period. This is reasonable and can be attributed to older age of the SLSs, thus making them more prone to discontinuation of usage.	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the training was provided to the staff responsible for collection of data/35.1/. QA/QC procedure is in place.	
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable	
Findings	None		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/2/ (as per measurement methods and procedures to be applied) and applied methodology /10/11/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

SDG 13: This factor corrects the total number of lamps of Type i by the share of these lamps that were found to be operational according to the sampling in period v., $CF_{i,v,LFR}$, %

Relevant SDG Indicator	SDG 13: Climate Action		
Means of verification	Criteria/Requirements	Assessment/Observation	
	Measuring /Reading /Recording frequency	Annual	
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DDs/2/	
	Monitoring equipment	Not Applicable	

	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	Value of this parameter is calculated using the value of lamp failure rate ($LFR_{i,v}$) using the below equation: $CF_{i,v,LFR} = 1 - \left(LFR_{i,v} + z * \sqrt{\frac{LFR_{i,v} * (1 - LFR_{i,v})}{n_{i,v,total}}} \right)$ Values mentioned in the monitoring report were checked with the ER calculations sheet and found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	Calculation approach reported in the ER calculation sheet was found to be satisfactory and in line with the registered monitoring plan.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	This value is calculated based on the results of other monitored parameters with 90/10 confidence/precision. The statistical error is included in this parameter (confidence level 90%) when 90/10 precision is not met.
Findings	None	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/2/ (as per measurement methods and procedures to be applied) and applied methodology /10/11/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: Total number of lamps checked for which a valid result was obtained, $n_{i,v,total}$, Lamps

Relevant SDG Indicator	SDG 13: Climate Action	
Means of verification	Criteria/Requirements	VVB Assessment
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency in line to the PoA-DD/1/ and VPA-DDs/2/.
	How were the values in the monitoring report verified?	This parameter is determined using the sampling surveys. Simple random sampling is applied to determine the sample size for the surveys. Sample size for each type of SLS model is calculated separately for each partner organization and each state.

		<p>The verification team conducted a on-site visit wherein 11 randomly selected households from the VPA with SLS distribution were surveyed and asked about the operationality and usage of the project device. All sampled households were found to have an operational SLS which was subjected to regular, daily usage. The data of surveyed households was also consistent with results presented in ER sheets/5/6/7/8/52/53/54/55/, which were used in calculation of the parameter value.</p> <p>The monitored value are included in the final Monitoring Report /41/. The required level of precision i.e., 10% or less, has been achieved at 90% confidence level.</p> <p>Minimum 30 samples or total number of deployed SLS were monitored wherever the sample size arrived as less than 30 for a particular group of SLS model/state/PO combination. In some cases, the actual number of installations were less than 30 therefore the entire population size was considered. The verification team was able to confirm that the sample size calculation is in line with the Guideline: Sampling and surveys for CDM project activities and programme of activities/27/.</p> <p>As an additional measure of conservativeness, CME has calculated this value using the assumption that all SLSs with status recorded as "installed_damaged" during quarterly and annual usage monitoring survey (which was done as a QA/QC procedure inline with revised approved PoA-DD/1/ and VPA-DDs/2/) are not working or in use. CME has considered no emission reductions from these devices with "installed_damaged" status even if they are functional and in use after introducing minor repairs or fixes. This has been verified through evidence provided i.e., some sample monitoring survey forms/42//19/ and quarterly usage survey forms/42/. This has been reflected accurately in ER sheets/5/6/7/8/52/53/54/55/ as well.</p>
	<p>If applicable, has the reported data been cross-checked with other available data?</p>	<p>The survey results, assumptions and sales records for different state/model/PO groups were checked by the verification team at random and were found acceptable. The results are reproducible in the ER sheets corresponding to final Monitoring Report/41/.</p> <p>The verification team cross-checked the</p>

		parameter related data in ER sheet against the filled monitoring survey forms of the CME/42/ of the 66 randomly selected samples for VVB's onsite survey. It was confirmed that all the responses on solar lighting systems' operationality as reported by the end users during onsite interviews were consistent with the CME's sample survey results/19/42/.
	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/PO select the households for monitoring survey to check the lamp usage status for each lamp type <i>i</i> in the monitoring period. The survey results are recorded in Credit Tracker.</p> <p>The training was provided to the staff responsible for collection of data/35.1/. Thus, the QA/QC procedure is in place for the training of staff, and the documentary evidences were shared by CME against these requirements/35.1/.</p>
Findings	None	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG 13: Determination of whether or not the end user used kerosene for lighting prior to the project activity, kerosene usage in the baseline

Relevant SDG Indicator	SDG 13: Climate Change	
Means of verification	Criteria/Requirements	VVB Assessment
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the PoA-DD/1/ and VPA-DDs/2/.
	How were the values in the monitoring report verified?	<p>Every household is asked about the baseline fuel used for lighting purpose at the time of loan application. The information gathered from the end users/purchaser of the product is recorded in the MIS system of POs and Credit Tracker Platform. This was confirmed from the credit tracker output file/47/.</p> <p>For the current monitoring period, it was inquired and confirmed during DOE onsite surveys of 11 randomly selected households per VPAs that all those households were using kerosene for lighting</p>

		prior to the purchasing the SLS.
	If applicable, has the reported data been cross-checked with other available data?	Data recorded in the system generated credit tracker output file/47/ is checked at random. Also, the sample households are randomly checked by the verification team for 11 randomly selected households per VPA by cross-checking the data in ERs sheet against baseline survey forms of these households/44/ (which were filled at the time of SLS installation). The form contains information about the baseline fuel in use by the household.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the training was provided to the staff responsible for collection of data/35.1/. QA/QC procedure is in place.
Findings	None	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Other SDGs (for all VPAs)

SDG1: Number of SLS distributed in Project, BSAProject, Number

Relevant SDG Indicator	SDG 1: No poverty		
Means of verification	Criteria/Requirements	Assessment/Observation	
	Measuring /Reading /Recording frequency	This parameter is measured on annual basis	
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DDs/2/	
	Monitoring equipment	Not Applicable	
	Calibration frequency /interval:	Not Applicable	
	How were the values in the monitoring report verified?	The verified value for this parameter as per VPAs are:	
		VPA#	Value (Number)
	VPA 04	19,794	
	VPA 05	81,045	
	VPA 07	46,822	
	VPA 08	11,671	

		VPA 11	242,588
		VPA 13	138,762
		The records of number of VPA for SLS distributed in monitoring database, ex-post monitoring survey records were cross checked. Since the database is a primary source of data collection and the QA/QC were found to be robust as described below, the values were accepted.	
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.	
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable	
Findings	None		
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 /10/11/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

SDG 7: Access to affordable and clean energy (Number of operating SLS units under Project), ACS_{Project}, Number

Relevant SDG Indicator	SDG7: Affordable and Clean Energy	
Means of verification	Criteria/Requirements	VVB Assessment
	Measuring /Reading /Recording frequency	Continuously
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the PoA-DD/1/ and VPA-DD's/2/.
	How were the values in the monitoring report verified?	The post monitoring records/41/18/ were checked to identify as part of the assessment as well as during the interviews

		conducted with the 66 selected beneficiaries during on site visit the intended beneficiaries who are having access to affordable, reliable and modern energy services.															
		The value of the parameter considered to be as mentioned below, which was found to be acceptable.															
		<table><tr><th>VPA#</th><th>Value (Number)</th></tr><tr><td>VPA 04</td><td>14,375</td></tr><tr><td>VPA 05</td><td>66,137</td></tr><tr><td>VPA 07</td><td>35,522</td></tr><tr><td>VPA 08</td><td>9,421</td></tr><tr><td>VPA 11</td><td>183,085</td></tr><tr><td>VPA 13</td><td>132,324</td></tr></table>		VPA#	Value (Number)	VPA 04	14,375	VPA 05	66,137	VPA 07	35,522	VPA 08	9,421	VPA 11	183,085	VPA 13	132,324
		VPA#	Value (Number)														
		VPA 04	14,375														
		VPA 05	66,137														
		VPA 07	35,522														
		VPA 08	9,421														
	VPA 11	183,085															
	VPA 13	132,324															
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	None																
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/ and registered VPA-DDs/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.																

E.6.5. Implementation of sampling plan

Means of verification	<p>The monitoring has been carried out in accordance with the monitoring plan contained in the PoA-DD/1/ and respective VPA-DDs/2/.</p> <p>Sampling Design/Target Population/Sampling Frame/Reliability:</p> <p>In this sampling design, the VPA's that are covered under the current monitoring period (GS11476 (VPA 04), GS11505 (VPA 05), GS11477 (VPA 07), GS11478 (VPA 08), GS11481 (VPA 11), GS11483 (VPA 13)) are the subject. The sampling frame considered confidence level and precision as 90/10 considering the requirement of Standard for sampling and surveys for CDM PAs and PoAs/24/.</p> <p>The Credit Tracker Platform that records the contact details of the solar lighting systems end users, serves as the basis from which sampling frame is developed.</p> <p>Sampling Method (AMS-I.A):</p> <p>Considering the homogeneity regarding the usage of solar products for the</p>
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PO's in the relevant VPA's with solar lighting system sales, simple random sampling is applied to determine the parameter "Total number of lamps checked for which a valid result was obtained". In first stage of sampling the total sales population is divided per partner if more than one partner organization (PO) involved in the VPAs. Further if the solar lighting systems sold by the PO in more than one state then the sales population splits at state level.

Sample Size (Required and Actual) for Parameter of Interest:

The sampling is applied to the proportion-based parameter $n_{i,v,total}$ for the monitoring period requesting issuance. The sample sizes were determined, separately as per type of Solar lighting models and /or for the SLS models implemented by each PO per state.

In this regard, sample size calculation spreadsheets/53/ was checked and found correct as per registered monitoring plan. Minimum 30 samples or total number of deployed SLSs were monitored wherever the sample size arrived as less than 30 for particular group of SLS model/state/PO combination. In some cases, the actual number of installations were less than 30, and therefore, the entire population size was considered. The verification team was able to confirm that the sample size calculation is in line with the Guideline: Sampling and surveys for CDM project activities and programme of activities/27/. Thus, the actual surveyed systems were either same or higher than the required number.

To confirm whether the sample is representative of the different vintage of solar CEPs (in case of AMS-I.A), CME had submitted a separate excel file/43/ which was assessed by the verification team for the proportion of total sales in different vintages versus the proportion of selected sampled households in those vintages. The vintages were calculated based on implementation date. The same is found to be justified and appropriate. Hence the verification team was able to confirm that the samples are representative of the total population.

A sample vintage consideration for application of sampling plan for VPAs following AMS-I.A is as follows:

Vintage split for Spark Series in the state of Uttar Pradesh: (sample size requirement-86)- VPA13

Vintage based on implementation date	Proportion in distribution	Required number of samples based on proportion in distribution	Number of samples monitored for d.light S400
0-1 (01/01/2021 to 31/12/2021)	0%	0	0
1-2 (01/01/2020 to 31/12/2020)	0%	0	0
2-3 (01/01/2019 to 31/12/2019)	0%	0	0
3-4 (01/01/2018 to 31/12/2018)	0%	0	0
4-5 (01/01/2017 to 31/12/2017)	0%	0	0
5-6 (01/01/2016 to 31/12/2016)	~0%	0	0
5-6 (01/01/2015 to 31/12/2015)	~5%	5	5

5-6 (01/01/2014 to 31/12/2014)	~95%	81	81
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VPA's part of this issuance request have CEP sales in different vintages, and the number of samples (weightage based on number of CEPs installed and being used in the vintage) are assigned to each vintage accordingly. It was verified with credit tracker platform output files (VPA specific) /47/ and found to be consistent with the data available in vintage-wise consideration sheet/43/ average lifetime of various models of solar lights have been checked from their technical specifications.

All models distributed in VPA 13 have an average technical life of 5 years or more. However, this is an average estimate of the lifetime which might vary from individual product to product, depending on usage and handling. During verification team's on-site visit, through interviews with project implementer representatives it was confirmed that system is in place for after-sales maintenance services to help the households with issues faced with operationality of the device. The end users were also interviewed to cross check, and it was found that they are aware of the available after-sales services. Additionally, what must also be noted is that CME conducts an annual and quarterly monitoring for all end users to check the usage status of the project device, thus capturing non-operational devices, which are then not accounted in calculation for emission reductions. Therefore, consideration of all solar lighting systems vintages included in the VPA has been accepted by the verification team.

Sampling Method (AMS-III.AR)

The sampling is applied to the proportion-based parameter $OF_{y,i,j}$ for the monitoring period requesting issuance. The samples for monitoring are randomly picked from each sample set. The sampling frame considered confidence level and precision as 90/10 considering the requirement of Standard for sampling and surveys for CDM PoAs for the monitored parameter requiring sampling. The Credit Tracker Platform that records the contact details of all end users serve as the basis from which sampling frame is developed. Differently aged CEPs are divided into separate sample frames and samples are picked from each of these of these sets separately by applying the sampling plan on each of these batches.

In conclusion, VVB reviewed all the evidence submitted by PP related to GHG emission reduction calculations and confirmed that all the parameters are correctly applied. Default values used in the calculation were identified correctly. The emission reduction calculation has been done in line with the applied methodology.

It is also to be noted that for VPA4,5,7,8,11, CME had been applying AMS I.A v14 during its first crediting period under CDM which required annual monitoring to be conducted. However, during transition to GS4GG, the crediting period was renewed, and methodology was changed to AMS III AR v7. CME conducted the monitoring at the beginning of the monitoring period to align with the requirements of the new applied methodology.

Sample selection:

The samples were randomly selected using a computerized randomizer tool in Microsoft excel, and the verification team has reviewed the calculation. The samples were drawn from the complete sales databases (irrespective of their usage status determined during usage survey) for each relevant VPA-DD/2/. The sample can be confirmed to be representative of the total population in the context of the consideration of vintage of implementation of solar CEPs.

	Implementation of survey: Based on interviews with the CME and surveyors during the onsite surveys, in addition to simply asking this question to the end users, the surveyors were also trained to visually inspect the solar lighting system to corroborate the responses received. Therefore, the implementation of survey was considered reliable.																						
	Monitoring survey (by CME) duration: The monitoring survey (field survey / tests) was carried out by CME representatives between following duration for the current monitoring period:																						
	<table border="1"> <thead> <tr> <th>VPA Ref. No.</th> <th>Technology</th> <th>Survey dates for current monitoring period</th> </tr> </thead> <tbody> <tr> <td>GS 11476</td> <td>SLS</td> <td>09/01/2021 to 25/01/2021</td> </tr> <tr> <td>GS 11505</td> <td>SLS</td> <td>04/07/2020 to 31/07/2020</td> </tr> <tr> <td>GS 11477</td> <td>SLS</td> <td>04/01/2021 to 14/02/2021</td> </tr> <tr> <td>GS 11478</td> <td>SLS</td> <td>05/01/2021 to 31/01/2021</td> </tr> <tr> <td>GS 11481</td> <td>SLS</td> <td>01/07/2020 to 05/08/2020</td> </tr> <tr> <td>GS 11483</td> <td>SLS</td> <td>year 1 (04/07/2021 to 15/08/2021) year 2 (10/01/2022 to 20/02/2022)</td> </tr> </tbody> </table>	VPA Ref. No.	Technology	Survey dates for current monitoring period	GS 11476	SLS	09/01/2021 to 25/01/2021	GS 11505	SLS	04/07/2020 to 31/07/2020	GS 11477	SLS	04/01/2021 to 14/02/2021	GS 11478	SLS	05/01/2021 to 31/01/2021	GS 11481	SLS	01/07/2020 to 05/08/2020	GS 11483	SLS	year 1 (04/07/2021 to 15/08/2021) year 2 (10/01/2022 to 20/02/2022)	Therefore, it was concluded that the monitoring survey results obtained are applicable for the entire monitoring period.
	VPA Ref. No.	Technology	Survey dates for current monitoring period																				
	GS 11476	SLS	09/01/2021 to 25/01/2021																				
	GS 11505	SLS	04/07/2020 to 31/07/2020																				
GS 11477	SLS	04/01/2021 to 14/02/2021																					
GS 11478	SLS	05/01/2021 to 31/01/2021																					
GS 11481	SLS	01/07/2020 to 05/08/2020																					
GS 11483	SLS	year 1 (04/07/2021 to 15/08/2021) year 2 (10/01/2022 to 20/02/2022)																					
Reliability and precision calculation: The verification team has verified the ER calculation spreadsheets/5/6/7/8/52/53/ with the monitored data, where the actual achieved precision is calculated against the Guidelines outlined under "Standard for sampling and surveys for CDM project activities and programme of activities"/26/ and can confirm that the calculation of achieved reliability was done correctly. Reliability and precision check are carried out for each monitored sample group under the VPA. The parameters reported in ER spreadsheet 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 /5/6/7/8/52/53/ corresponding to final Monitoring Report /41/, which were also found appropriate. Based on the verified results the verification team found that the required precision is met in all the cases and therefore the survey results were directly used in the calculation of ERs.																							
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 DDs/2/.																						

E.6.6. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	No monitoring equipment required to monitor the parameters, as verified through the registered monitoring plan as outline in the VPA-DDs/2/ and PoA-DD/1/.
Findings	No findings raised.
Conclusion	The verification team has determined that no monitoring equipment has been used by the PP. Therefore, there was no requirement of calibration.

This was in accordance with the accepted monitoring plan and the applied monitoring methodology.

E.6.7. Assessment of data and calculation of emission reductions or net removals

E.6.7.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

Means of verification

SDG-13: Climate Action

The verification team verified that

- A complete set of data for the monitoring period was available for the monitoring period and the verification of each monitoring parameter is elaborated under Section E.6.4 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheets /5/6/7/8/52/53/54/55/ of final Monitoring Report /41/.
- 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.6.4 of this report.
- The calculations of baseline emissions as presented in the corresponding ER calculations sheet of final Monitoring Report were checked and found to be consistent with the formulae and methods described in the registered monitoring plan of each relevant VPA-DDs/2/, PoA-DD/1/ and the applied methodology/10/11/.
- All assumptions used in the emission calculations were found appropriate and therefore justified
- Appropriate emission factors, IPCC default factors/33/ and other reference values have been correctly applied. This has also been elaborated under Section E.6.4 of this report.
- No standardized baseline was prescribed in the PoA-DD and therefore it has not been applied.
- There is no pro-rata approach applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol.

The following equations were used to determine the baseline emissions as provided in the monitoring report /41/ and applied in the corresponding ER calculations sheets /8/. The equations used were found consistent with the revised accepted PoA-DD/1/, VPA-DDs/2/ and the applied methodology

AMS-III.AR., Version 07/11/:

The emissions reductions for solar lighting projects under AMS-III.AR are determined from equation (5) of the methodology, mentioned below:

$$ER_y = \sum_{i,j} N_{i,j} \times (BE_{y,i} - PE_{y,i,j}) \times (OF_{y,i,j})$$

Parameter	Unit	Value
ER _y	tCO ₂ e	Emission reductions in year y (
N _{i,j}	Number of project lamps	Number of project lamps distributed to end users of type <i>i</i> with charging method <i>j</i>
BE _{y,i}	tCO ₂ e	Baseline emissions per project lamp in year y
PE _{y,i}	tCO ₂ e	Project emissions per project lamp in year y

$OF_{y,i,j}$	%	Percentage of project lamps distributed to end users that are operating and in service in year y , for each lamp type i and charging method j . Assumed to be equal to 100 per cent for years 1, 2 and 3, and equal to the value determined in paragraph 36, for years 4, 5, 6 and 7
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The baseline emissions per project lamp in year y are calculated using equation (3) of the methodology, mentioned below:

$$BE_y = DV \times GF_y \times DB_y$$

Parameter	Unit	Value
BE_y	tCO ₂ e	Baseline emissions per project lamp in year y
DV	tCO ₂ e per project lamp	Lamp Emission Factor (default is 0.092 tCO ₂ e per project lamp)
GF_y	-	Grid Factor in year y , <ul style="list-style-type: none"> • Equal to 1.0 when charging option defined in paragraph 3(a) is used; • Equal to 1.0 if the project activity is for off-grid households/communities (defined as no grid access or less than 12 hours grid availability per day on an annual average basis); • Otherwise it is equal to 1.0 minus (the fraction of time grid is available to the target households and communities/users in the region of project activity)
DB_y	-	Dynamic Baseline Factor (change in baseline fuel, fuel use rate, and/or utilization during crediting period) in year y . Calculated as either: <ul style="list-style-type: none"> • Option 1: default of 1.0 in the absence of relevant information; • Option 2: value of $1.0 + FF_g$ where FF_g is the documented national growth rate of kerosene fuel use in lighting from the preceding years (use the most recent available data for a three or five years average fraction)

In line with paragraph 29 of the methodology, there are no project emissions as the project lamp charging mechanism utilizes a renewable energy system (solar photovoltaic panel) included as part of the project lamp. Thus,

$$PE_{y,i} = 0$$

Here, the Lamp Emission Factor is determined through the following equation (2) of the methodology, mentioned below:

$$DV = FUR \times O \times U \times EF \div 1000 \times LF \times n \times NTG$$

Parameter	Unit	Value
DV	tCO ₂ e per project lamp	Lamp Emission Factor (default is 0.092 tCO ₂ e per project lamp)
FUR	liters/hour	Fuel use rate (0.03 liters/hour)
O	hours/day	Utilization rate (3.5 hours/day)
U	days/year	Annual utilization (365 days/year)
EF	kgCO ₂ /liter	Fuel emissions factor (2.4 kgCO ₂ /liter)
LF	-	Leakage factor (1.0)
n	-	Number of fuel-based lamps replaced per project lamp (1.0)
NTG	-	Net-to-gross adjustment factor (1.0)

AMS-I.A., version 14/10/:

Total ERs achieved in the current monitoring period by all types of SLS distributed in the relevant VPA is calculated using the following equations:

$$BE_v = \sum_{a=1}^n (N_{i,a} * d_{i,a,v}) * l_i * h * \frac{1}{LE_{ker}} * EF_{ker} * 10^{-6} * 3.6 * CF_{i,v,LFR}$$

Where:

- $BE_{i,v}$ = Emissions generated in the absence of the project activity in period v by all lamps of type i
- $N_{i,a}$ = The total number of solar lamps of type i deployed in period a
- $d_{i,a,v}$ = Average number of days lamps of type i that have been deployed in period a were operating in period v
- l_i = Nominal lumen output of solar lamps of the type i deployed as part of the project activity
- h = Average number of hours solar lamps are used per day
- LE_{ker} = The specific light output of kerosene when burnt in a kerosene lantern
- EF_{ker} = The specific CO₂-emissions of kerosene
- $CF_{i,v,LFR}$ = This factor corrects the total number of lamps of type i by the share of these lamps that were found to be operational according to the sampling in period v . The statistical error is included in this parameter (confidence level 90%).

And:

$$CF_{i,v,LFR} = 1 - \left(LFR_{i,v} + z * \sqrt{\frac{LFR_{i,v} * (1 - LFR_{i,v})}{n_{i,v,total}}} \right)$$

Where:

- $CF_{i,v,LFR}$ = This factor corrects the total number of lamps of type i by the share of these lamps that were found to be operational according to the sampling in period v . The statistical error is included in this parameter (confidence level 90%).
- $LFR_{i,v}$ = Share of lamps of Imp type i in checked sample group $g_{i,v}$ not operational in period v .
- z = Standard normal for a confidence level of 90%
- $n_{i,v,total}$ = Total number of lamps checked for which a valid result was obtained.

Since there are different models of SLS having different lumen output are distributed/sold under the relevant VPAs, hence the emission reductions achieved by each type of solar lighting system is calculated separately. The above equation is used to calculate the ER achieved by particular solar lighting system and total emission reductions are arrived at as summation of the same.

$$BE_v = \sum_{i=1}^n BE_{i,v}$$

Where,

$BE_{i,v}$ is the emission reductions achieved in the period v by all lamps of type i

The calculation provided as a sample for one of the Partner-Model-State combination in MR/41/ has been reviewed and is found consistent with actual calculations applied in ER calculation sheet/5/ for that specific combination. It is noted that the sample calculation provided in MR is only one example of a specific group, which in no case reflect total baseline emissions from the technology i.e. from SLS distribution.

Findings

No findings

Conclusion

The verification team verified that

- A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.6.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet /5/6/7/8/52/53/54/55/ of final Monitoring Report /41/.
- 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.6.4.2 of this report.
- The calculations of baseline emissions as presented in the corresponding ER calculations sheet /5/6/7/8/52/53/54/55/ of final Monitoring Report /41/ were checked and found to be consistent with the formulae and methods described in the registered monitoring plan of VPA-DDs /2/, registered PoA-DD /1/ and the applied methodology/10/11/.
- All assumptions used in the emission calculations were found appropriate and therefore justified
- Appropriate emission factors, IPCC default factors/33/ and other reference values have been correctly applied. This has also been elaborated under Section E.6.4.1 of this report.

I) No standardized baseline was prescribed in the registered PoA-DD/1/.

E.6.7.2. Calculation of project value or estimation of project situation of each SDG Impact

Means of verification	The PoA-DD/1/, VPA-DDs/2/ and applied monitoring methodology/10/11/ does not prescribe any project emissions to be considered. The onsite visit conducted, and project design also did not reveal any potential source to be considered in this regard.
Findings	None
Conclusion	No project emissions are required to be calculated.

E.6.7.3. Calculation of leakage

Means of verification	The PoA-DD/1/, VPA-DDs/2/ and applied monitoring methodology/10/11/ does not prescribe any leakage emissions to be considered. The onsite visit conducted, and project design also did not reveal any potential source to be considered in this regard.
Findings	None
Conclusion	No additional leakage emissions (other than what is already considered in baseline calculations) were required in accordance with the methodology AMS-I.A, version 14 /10/ and AMS-III.AR., version 07/11/.

E.6.7.4. Calculation of net benefits or direct calculation for each SDG Impact

For SLS

Means of verification	SDGs Targeted	SDG Impact	Baseline estimate	Project estimate	Net benefit
	13	Climate Action	VPA 4- 436 VPA 5-17,482 VPA 7-8,709 VPA 8- 2,599 VPA 11- 25,433 VPA 13- 58,798 VPA 17- 0 VPA 18- 0	0 tCO ₂ e VERs (for all VPAs)	VPA 4- 44,620 VPA 5-70,363 VPA 7-52,851 VPA 8- 41,172 VPA 11-27,299 VPA 13- 152,786 VPA17- 68,813 VPA18- 66,213
	1	No Poverty	0	VPA 4-19,794 VPA 5-81,045 VPA 7-46,822 VPA 8-11,671 VPA 11- 242,588 VPA 13- 138,762 VPA17-0 VPA18-0	VPA 4- 19,794 VPA 5- 81,045 VPA 7-46,822 VPA 8-11,671 VPA11-242,588 VPA13-138,762 VPA17-0 VPA18-0
	7	Affordable and clean energy	0	VPA 4-14,375 VPA 5-66,149 VPA 7-35,522 VPA 8-9,421 VPA 11- 183,085	VPA 4-14,375 VPA 5-66,149 VPA 7-35,522 VPA 8-9,421 VPA 11- 183,085 VPA 13- 132,324

			VPA 13-132,324 VPA17-0 VPA18-0	VPA17-0 VPA18-0
	The calculation methods applied for all the SDG impacts were checked with PoA-DD/1/ and VPA-DDs/2/. The verification team confirms that the stated figures were checked and found acceptable.			
Findings	None			
Conclusion	<p>The verification team confirms that</p> <p>e) The complete data was available and is duly reported;</p> <p>f) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section E.5.4 and section E.6.4 of this report);</p> <p>g) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed;</p> <p>h) Appropriate emission factors, IPCC default factors/33/ and other reference values were correctly applied.</p>			

E.7. Comparison of actual SDG Impacts with estimates in approved PDD

Means of verification	From Section E.5 of the Monitoring Report, it is apparent that estimated values were off while the project monitored its progress.			
	SDGs Targeted	SDG Impact	Values estimated in ex ante calculation of approved PoA-DD for this monitoring period	Actual values achieved during this monitoring period
	13	Climate Action	VPA04 – 86,747 VPA05 – 97,001 VPA07 – 82,791 VPA08 – 68,489 VPA11 – 47,904 VPA13 – 117,409 VPA17 – 85,788 VPA18 – 81,815	VPA04 – 44,184 VPA05 – 52,879 VPA07 – 44,142 VPA08 – 38,573 VPA11 – 34,040 VPA13 – 93,988 VPA17 – 68,813 VPA18 – 66,392
			VPA04 – 5,183 VPA05 – 12,018 VPA07 – 11,677 VPA08 – 3,648 VPA11 – 126,632 VPA13 – 1,037,016 VPA17 – 0 VPA18 – 0	VPA04 – 436 VPA05 – 17,482 VPA07 – 8,709 VPA08 – 2,599 VPA11 – 25,433 VPA13 – 58,798 VPA17 – 0 VPA18 – 0
	1	No Poverty	VPA04 – 29,937 VPA05 – 19,963 VPA07 – 25,646 VPA08 – 23,337 VPA11 – 14,220 VPA13 – 27,000 VPA17 – 26,921 VPA18 – 26,632	VPA04 – 29,937 VPA05 – 19,963 VPA07 – 28,495 VPA08 – 23,337 VPA11 – 14,220 VPA13 – 27,000 VPA17 – 26,921 VPA18 – 26,080
			VPA04 – 19,794 VPA05 – 81,045	VPA04 – 19,794 VPA05 – 81,045

			VPA07 – 26,822 VPA08 – 11,671 VPA11 – 242,588 VPA13 – 200,000 VPA17 – 0 VPA18 – 0	VPA07 – 46,822 VPA08 – 11,671 VPA11 – 242,588 VPA13 – 138,762 VPA17 – 0 VPA18 – 0
	3	Good Health and well being	VPA04 – 100 % VPA05 – 100 % VPA07 – 100 % VPA08 – 100 % VPA11 – 100 % VPA13 – 100 % VPA17 – 100 % VPA18 – 100 %	VPA04 – 64 % VPA05 – 62 % VPA07 – 66 % VPA08 – 68 % VPA11 – 64 % VPA13 – 73 % VPA17 – 86 % VPA18 – 83 %
	5	Gender Equality	VPA04 – 100 % VPA05 – 100 % VPA07 – 100 % VPA08 – 100 % VPA11 – 100 % VPA13 – 100 % VPA17 – 100 % VPA18 – 100 %	VPA04 – 64 % VPA05 – 62 % VPA07 – 66 % VPA08 – 68 % VPA11 – 64 % VPA13 – 73 % VPA17 – 86 % VPA18 – 83 %
	7	Affordable and clean energy	VPA04 – 26,943 VPA05 – 17,697 VPA07 – 25,646 VPA08 – 21,004 VPA11 – 12,798 VPA13 – 24,300 VPA17 – 24,229 VPA18 – 23,803	VPA04 – 17,127 VPA05 – 66,137 VPA07 – 35,522 VPA08 – 14,228 VPA11 – 9,005 VPA13 – 19,809 VPA17 – 23,152 VPA18 – 21,648
	8	Decent Work and Economic Growth	VPA04 – 20 Jobs VPA05 – 20 Jobs VPA07 – 20 Jobs VPA08 – 20 Jobs VPA11 – 20 Jobs VPA13 – 20 Jobs VPA17 – 20 Jobs VPA18 – 20 Jobs	VPA04 – 30 Jobs VPA05 – 93 Jobs VPA07 – 60 Jobs VPA08 – 30 Jobs VPA11 – 48 Jobs VPA13 – 75 Jobs VPA17 – 30 Jobs VPA18 – 30 Jobs
			The actual SDG targets against the anticipated values in PoA-DD/01/ and VPA-DDs/02/ is lower for all the SDGs except SDG 8 as tabulated above. The primary reason being in the PoA-DD and VPA-DDs sales for the respective technology are much lower than expected in the VPA-DDs. Thus, the achieved SDG targets are much lower than anticipated.	
Findings			None	
Conclusion			The actual emission reductions achieved in the current monitoring period for the VPAs is lower than the emission reductions as well as for other SDG targets stated in the VPA-DDs/2/. Therefore, it has been accepted	

by the verification team.

E.7.1. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

Means of verification	The Monitoring Report /41/ and corresponding ER calculations sheet /5/6/7/8/52/53/54/55/, show that the actual emission reductions achieved for project stove during this monitoring period are less than the estimate provided in VPA-DDs/2/.
Findings	None
Conclusion	No justification was sought from the PD because the achievement of emission reductions were lower than what had been estimated.

E.8. Stakeholder Inputs and Legal Disputes

Means of verification	Not applicable
Findings	None
Conclusion	Not Applicable

SECTION F. Internal quality control

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

SECTION G. Verification opinion

Earthood Services Private Limited (Earthood), contracted by, has performed the independent verification of the emission reductions for the GS Project GS11476 (VPA 04), GS11505 (VPA 05), GS11477 (VPA 07), GS11478 (VPA 08), GS11481 (VPA 11), GS11483 (VPA 13), GS11451 (VPA 17), and GS11486 (VPA 18) in the host country "India" for the monitoring period 01/01/2021 to 31/12/2021 (both dates inclusive), as reported in the Monitoring Report, Version 2.0 dated 25/10/2022/41/. The 'MicroEnergy Credits' is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity. Earthood commenced the verification against the baseline and monitoring methodology "TPDDTEC – "Technologies and Practices to Displace Decentralized Thermal Energy Consumptions, Version 3.1"/09/, "AMS I.D – Electricity generation by the user, Version 14.0"/10/ and AMS-III.AR "Substituting fossil fuel based lighting with LED/CFL lighting systems" version 07/11/, the monitoring plan contained in the VPA-DDs and Monitoring Report Version 2.0 dated 25/10/2022/41/.

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-DDs.
- The actual operation conforms to the description in the registered PoA – DD/01/ and VPA- DDs/02/.

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 2.0 dated 25/10/2022/41/. ESPL, based on outcome of verification activities, certifies in writing that, during the monitoring period 01/01/2021 to 31/12/2021 (inclusive of both the dates) for the VPA 04, 07, 08, 17 and VPA 18 and Monitoring period for the VPA 05, 11 & VPA 13 is 27/06/2020 – 31/12/2021 (inclusive both dates) the registered GS PoA – GS11450 "MicroEnergy Credits – Microfinance for Clean Energy Product Lines – India" achieved the verified amount of 44,620 tCO₂e reductions for VPA 04, 68,446 tCO₂e reductions for VPA 05, 52,851 tCO₂e reductions for VPA 07 and 41,172 tCO₂e reductions for VPA 08, 59,473 tCO₂e reductions for VPA 11, 152,786 tCO₂e reductions for VPA 13 and 68,813 tCO₂e reductions for VPA 17, 66,392 tCO₂e reductions for VPA 18 in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the PoA.

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

Verified and certified emission reductions as per monitoring period:

Monitoring period	VPA 04	VPA 07	VPA 08	VPA 17	VPA 18
From 01/01/2021 till 31/12/2021	44,620 tCO ₂ e	52,851 tCO ₂ e	41,172 tCO ₂ e	68,813 tCO ₂ e	66,392 tCO ₂ e
Total	44,620 tCO ₂ e	52,851 tCO ₂ e	41,172 tCO ₂ e	68,813 tCO ₂ e	66,392 tCO ₂ e

Monitoring period	VPA 05	VPA 11	VPA 13
From 27/06/2020 till 31/12/2021	68,446 tCO ₂ e	59,473 tCO ₂ e	152,786 tCO ₂ e
Total	68,446 tCO ₂ e	59,473 tCO ₂ e	152,786 tCO ₂ e

Appendix 1. Abbreviations

Abbreviations	Full texts
General	

ACM	Approved Consolidated Methodology
AM	Approved Methodology
BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CME	Coordinating and Managing Entity
CL	Clarification Request
CO2	Carbon dioxide
CP	Crediting Period
DR	Desk Review
EB	Executive Board
EI	External Individual
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
IPCC	Intergovernmental Panel on Climate Change
IR	Internal Resource
KP	Kyoto Protocol
LSC	Local Stakeholder Consultation Process
MoC	Modalities of Communication
MoV	Means of Verification
MP	Monitoring Plan
ODA	Official Development Assistance
PA	Project Activity
PCP	Project Cycle Procedure
PD	Project Developer
PDD	Project Design Document
PE	Project Emission
PoA	Programme of Activities
PoA DD	Programme of Activities Design Document
PS	Project Standard
RCP	Renewal of Crediting Period
RFR	Request for Registration
tCO2e	tonnes of Carbon di Oxide equivalent
TPH	Tonnes Per Hour
TR	Technical Reviewer
UNFCCC	United Nations Framework Convention on Climate Change
V	Version
VPA	Verified Project Activity
VVB	Validation and Verification Body
VVS	Validation and Verification Standard
Project Specific	
ICS	Improved Cookstove
GS4GG	Gold Standard for Global Goals
EPC	Electric Pressure Cooker
LSC	Local Stakeholder Consultation
MoV	Means of Verification
SDG	Sustainable Development Goals
WPS	Water Purification System technology

Appendix 2. Competence of team members and technical reviewers

Competence Statement			
Name	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	Sushant Vashisht		
Education	M.Sc. Environmental science and Technology		
Experience	6 months		
Field	Environment science and technology		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	YES		
Reviewed by	Shifali Guleria (Quality Manager)	Date	10/05/2022
Approved by	Deepika Mahala (Technical Manager)	Date	10/05/2022

Competence Statement			
Name	Vishnu S Panicker		
Education	M.Sc (Sustainable Development and Environment Management) B.Sc (Forestry)		
Experience	-		
Field	Forestry and environment		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	YES		
Reviewed by	Deepika Mahala (Quality Manager)	Date	08/09/2021
Approved by	Ashok Kumar Gautam (Technical Manager)	Date	17/09/2021

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	NO		
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	Charu Patwal
Education	M.Sc. Environmental Science
Experience	2 years 4 months
Field	Research & Sustainability
Approved Roles	
Team Leader	NO

Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	YES		
Reviewed by	Shifali Guleria (Quality Manager)	Date	10/05/2022
Approved by	Deepika Mahala (Deepika Mahala)	Date	10/05/2022

Competence Statement			
Name	Satya Ranjan Panda		
Education	M.Tech in Energy and Environmental Engineering (NIT Rourkela) B.Tech in Civil Engineering (NIST Berhampur)		
Experience	-		
Field	-		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	YES		
Reviewed by	Shifali Guleria (Quality Manager)	Date	15/09/2022
Approved by	Deepika Mahala (Technical Manager)	Date	15/09/2022

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	MEC	PoA-DD	Version 2.1 dated 15/09/2022	CME
2.	MEC	VPA-DD VPA 04 VPA 05 VPA 07 VPA 08 VPA 11 VPA 13 VPA 17 VPA 18	Ver.4.0, Ver.4.0, Ver.4.0, Ver.4.0, Ver.4.0, Ver.4.0, Ver.4.0, Ver.4.0, Ver. 4.0,	CME
3.	ESPL	Validation Report for inclusion of VPA	Version 1.0, dated 15/09/2022	Others
4.	GS4GG	Monitoring report template Guide	Version 1.1, published on 14/10/2020	GS4GG
5.	MEC	ER Calculation Summary Sheet_VPA 4	Pertaining to latest MR	CME
6.	MEC	ER Calculation sheet_VPA 05	Pertaining to latest MR	CME
7.	MEC	ER Calculation sheet_VPA 07	Pertaining to latest MR	CME
8.	MEC	ER Calculation sheet_VPA 08	Pertaining to latest MR	CME
9.	GS4GG	The Gold Standard Simplified Methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC)	Version 3.1, Dated 25/08/2017	Others
10.	UNFCCC	AMS I.A – Electricity generation by the user	Version 14.0	Others
11.	UNFCCC	AMS-III.AR Substituting fossil fuel-based lighting with LED/CFL lighting systems	Version 07	Others

12.	CDM	CDM webpage of the PoA: https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/B46TH0V2GLIZK1UPWJ3SMNA8QRX7FY/view	Last accessed on 13/10/2022	Others
13.	The Gold Standard Foundation	GS webpage of the PoA: https://registry.goldstandard.org/projects/details/3501	Last accessed on 13/10/2022	Others
14.	MEC	Carbon Title transfer document	-	CME
15.	MEC	Calibration certificates of weigh balance	Various	CME
16.	MEC	Calibration certificates of Moisture meter	Various	CME
17.	MEC	Spot check user records and the pictures of the stoves	-	CME
18.	MEC	Training records	-	CME
19.	MEC	Monitoring survey reports for parameters monitoring for ICS and SLS	-	CME
20.	MEC	Questionnaire used during the survey for each type of CEP	December 2020	CME
21.	SKDRDP	Technical specifications of ICS – Jumbo stove	-	CME
22.	d.Light	Technical specifications of SLS (Various)	-	CME
23.	MEC	Original copies of sales receipts / invoices/ warranty cards	-	CME
24.	UNFCCC	CDM PS for PoA	Version 3.0	Others
25.	UNFCCC	CDM VVS for PoA	Version 3.0	Others
26.	UNFCCC	Standard: sampling and surveys for CDM project activities and programme of activities	Version 9.0	Others
27.	UNFCCC	Guidelines: sampling and surveys for CDM project activities and programme of activities	Version 4.0	Others
28.	GS4GG	Principle and requirements	Version 1.2	Others
29.	GS4GG	PoA Requirements	Version 2.0	Others
30.	GS4GG	CSA Requirements	Version 1.2	Others
31.	GS4GG	GHG emission reduction and sequestration product requirements	Version 2.1	Others
32.	MEC	Employment Records	-	CME
33.	IPCC	IPCC Guidelines for National Greenhouse Gas Inventories 2.1 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/p)	-	Others

			df/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf)		
34.	GS4GG		Form: GS-MR-FORM	Version 1.1, Dated 14/10/2020	Others
35.	TASC		Training photos	-	CME
35.1	TASC		Training records	-	TASC
36.	The Gold Standard Foundation		REQUIREMENTS AND GUIDELINES USAGE RATE MONITORING,	-	CME
37.	IPCC		GWP: IPCC AR4 https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter2-1.pdf	-	Others
38.	IPCC		GWP: IPCC AR5, https://www.ipcc.ch/assessment-report/ar5/	-	Others
39.	MEC		Grievance Logbook	-	Others
40.	MEC		MEC and PO's agreement	-	CME
41.	MEC		Monitoring Report (final)	Version 2.0, dated 11/10/2022	CME
42.	MEC		Quarterly and annual monitoring survey forms	Filled	CME
43.	MEC		Vintage Wise approach (GS11482)	-	CME
44.	MEC		Credit tracker platform screenshots/ online – output file	-	CME
45.	MEC		https://cleancooking.org/binary-data/DOCUMENT/file/000/000/604-1.pdf	March 2018	CME
46.	MEC		Credit Tracker Platform Screenshots	-	CME
47.	MEC		Tracker output file	-	CME
48.	IIT Varanasi		Stove test report	-	CME
49.	UNFCCC		Tool 30: Calculation of the fraction of non-renewable biomass	Version 4.0	Others
50.	UNFCCC		Community Services Activity Requirements	Version 1.2	Others
51.	ESPL		On-Site audit records	-	Others
	52.	MEC	ER Calculation Summary Sheet_VPA 11	Version 4	CME
	53.	MEC	ER Calculation Summary Sheet_VPA 13	Version 3	CME
	54.	MEC	ER Calculation Summary Sheet_VPA 17	Version 4	CME
	55.	MEC	ER Calculation Summary Sheet_VPA 18	Version 4	CME

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

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

FAR ID	XX	Section no.	XX	Date : DD/MM/YYYY
Description of FAR				
There is no finding from validation.				
Project participant response				Date : DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

Table 2. CL from this verification

CL ID	01	Section no.	E.5.4.2	Date : 25/10/2022
Description of CL				
The project KPT were conducted in two seasons (wet season and dry season) with the same end-users and the value of mean wood consumption was calculated in all the VPAs accordingly. PP is requested to clarify what is the basis of choosing the final value of mean wood consumption based on the project KPT (wet or dry season) in all the VPAs.				
Project participant response				Date : 25/10/2022
<i>The consumption of wood during the wet season was found higher than the dry season. Hence due to conservativeness approach and keeping in line with TPDDTEC v3.1 season variation requirements, the KPT conducted in the wet season was considered. We have revised the formula in the ER calculation sheet to use reflect that maximum value has been used. Revised ER sheet has been provided.</i>				
Documentation provided by project participant				
NA				
DOE assessment				Date: 28/10/2022
The explanation provided by the PD was found to be appropriate. As per para 4.1.12 of the applied methodology TPDDTEC v3.1, "The approach taken to conduct the performance tests must be such that: the impact of daily and seasonal variations on the expected average fuel consumption savings is accounted for". The PD has accounted for the seasonal variations and conducted the KPT on wet and dry seasons over the same end-users. The approach to take account for maximum wood consumption in dry season is found to be conservative and hence, appropriate. The revised ER sheets has been reviewed and confirms that it reflects the formulae based on the maximum wood consumption in wet or dry season.				
CL#01 is CLOSED.				

CL ID	02	Section no.	E.6.4.2	Date : 25/10/2022
Description of CL				
The monitoring report on page 42 states that " <i>The luminosity (in Lumens) of the system given above is as per the manufacturer's specifications. However, there is a cap of 140.54 Lumens for the purpose of calculating emission reductions as per PoA-DD.</i> "				
However, no such information was found reported or discussed in the submitted PoA-DD or in the VPA-DD provided by PP to VVB for inclusion. PP is requested to explain in detail the source and rationale behind this value, especially considering that according to the CDM PoA and CPAs, this value was capped at a much lower value of 116.9 lumens. The information provided in PoA-DD, VPA-DD or MR is found insufficient to assess the appropriateness or conservativeness of the applied value.				
Project participant response				Date : 25/10/2022

The above-mentioned statement is only valid for VPA13,17,18. The monitoring report has been corrected to remove this statement from VPA4,5,7,8,11. The lumen cap in CPA-DD was based on 2012 value, CME has used the 2021 lumen cap during transition. The kerosene consumption value for 2004 was taken from NSSO 2004 report and equivalent lighting service reference cap was calculated using $LS \times 12/365 \times h$ which is equation 4 in section B.4. of the respective VPA-DDs. During the PoA registration in 2012, the value from 2004 was extrapolated for years 2012 to 2022 from which equivalent lighting service reference cap was determined. The same has been shown in the table 5 in section B.4. of the VPA-DD.

Year	Extrapolation of Kerosene Consumption (L/month)	Equivalent lighting service (lumen*hours/month)	Reference Cap (lumens)
2012	9.632	12448.96	116.9374
2013	9.848	12728.14	119.5598
2014	10.064	13007.31	122.1821
2015	10.28	13286.48	124.8045
2016	10.496	13565.65	127.4268
2017	10.712	13844.82	130.0492
2018	10.928	14123.99	132.6715
2019	11.144	14403.16	135.2939
2020	11.36	14682.33	137.9162
2021	11.576	14961.5	140.5386
2022	11.792	15240.68	143.1609

During transition to GS4GG in 2021, the extrapolated value of 2021 has been used as mentioned in the table above which is 140.538. For detailed calculation, please refer to baseline section B.4 of the VPA-DDs.

Documentation provided by project participant
DOE assessment
Date: 28/10/2022

The explanation provided by the PD has been reviewed. PD has indeed used the lumen cap established in 2012 during the registration of PoA in CDM, where the kerosene consumption value in 2004 was taken from 2004 NSSO report. The calculation of the extrapolated values has been checked and found to be appropriate. During the registration the lumen cap for 2012 was used and fixed for the entire period. Hence, during the transition under GS4GG, the PD has updated the lumen cap to the extrapolated value of 2021.

CL#02 is CLOSED.

CL ID	03	Section no.	E.6.4.2	Date	25/10/2022
Description of CL					
<ol style="list-style-type: none"> According to the VPA-DD and monitoring report, for parameter OF_{y,i,j} value is determined as <i>"Default value for the first three years of operation of a lamp as per the methodology. Post three years, for years 4-7, this value will be determined on the basis of sampling survey carried out in year 3"</i>. However, from the ER sheet and monitoring report, it is evident that monitoring was conducted for all vintages, not just year 3. PP shall clarify. The calculations for parameter OF_{y,i,j} have been reviewed from the ER sheet and it is noted that the value has been calculated by considering entire home lighting system as one unit i.e. even if there are 9 lamps in on HLS, the entire unit is being considered as one for the calculation of parameter OF_{y,i,j}. <ol style="list-style-type: none"> The approach is not clear in cases where some of the multiple lamps in one HLS are non-operational. PP is requested to provide more clarity on the appropriateness of the calculation method used for this parameter. Additionally, considering that different HLSs have different numbers of lamps, varying from 2 to 9, PP shall clarify how the sampling approach is considered appropriate where every type of HLS is given equivalent weightage for the purpose of sampling. 					
Project participant response					Date
					25/10/2022

1. As per the methodology, the years 4-7 refer to the operational years of project lamps (e.g. for project lamps distributed in year 3 of the crediting period years 1, 2 and 3 relate to the years 3, 4 and 5 of the crediting period and so forth). So, for a lamp distributed in year 2014 and 2015, the third year is considered as 2017 and 2018 respectively and so forth. Considering this, batching has been done based on the installation year (vintage). Additionally, for VPA4,5,7,8,11, we were using AMS I.A v14 during its first crediting period which required annual monitoring to be done. However, during transition to GS4GG, the crediting period was renewed and methodology was changed to AMS III AR v7. PP conducted the monitoring at the beginning of the monitoring period to align with the requirements of the methodology.

2.

i. The approach is appropriate considering it is conservative. During monitoring, even if 1-2 lights were found non-functional for a household, then entire system was considered not working. We have been very conservative in our approach on ER calculations to avoid overestimation of credits.

ii. Sampling approach has been devised considering that individual project lamps in a household are homogeneous within a region. Irrespective of number of lamps in the household, the service provided is lighting and also is used for comparatively same amount of time hence, the sampling approach is appropriate. Additionally, for sample calculation purpose, population has been considered "total installations" and not "total lamps" because irrespective of number of lamps, the service provided and usage hours is comparatively same. For e.g. of 3 SLS has 3 lamps and 2 SLS has 2 lamps, then population for sample calculation is considered as 5 (total SLS) and not 13 lamps. Furthermore, for calculating the usage, conservative approach is used which is already explained in point 2.i.

Documentation provided by project participant

DOE assessment **Date: 28/10/2022**

1. The explanation provided by the PD was found to be appropriate. The ER sheet and monitoring report has been checked and found to be appropriate. The distribution of lamps based on the vintages has been checked and found to be satisfactory. Also, CDM webpage and CPA-DD has been checked, all the CPA's were using AMS-I.D in the first crediting period, where annual monitoring has been done for the distribution of lamps. CLOSED

2. i. The ER sheets has been reviewed and the approach used by the PD is indeed found to be conservative. The ERs were not claimed for the whole HLS even if one or two of the lamps is found to be non-functional. Hence, CLOSED

ii. The sampling approach used by the PD was found to be appropriate. The ER sheet and the sampling calculation has been checked and found to be correct. CLOSED

CL#03 is CLOSED.

Table 3. CAR from this verification

CAR ID	01	Section no.	-	Date : 25/10/2022
Description of CAR				
Throughout the report several sections were found to be incompletely filled with data of some VPAs missing from the monitoring report entirely. PP is requested to clarify how the requirements of the template guidance released by GS are met for this batch.				
Project participant response				Date : 25/10/2022
All the information has been added to the monitoring report. Revised MR has been submitted				
Documentation provided by project participant				
Revised MR				
DOE assessment				Date: 28/10/2022
The revised MR has been checked. All the sections are now appropriately filled and data of all the VPAs are now added in the monitoring report. The data added has been verified and found to be correct.				
CAR#01 is CLOSED.				

CAR ID	02	Section no.	Several	Date : 25/10/2022
Description of CAR				

Following inconsistencies has been observed in MR:	
<ol style="list-style-type: none"> 1. The data filled in Table 1 of MR (below cover age) is found inconsistent with data in ER sheets 2. The crediting period dates provided in section A.4 of the MR are found inconsistent with the VPA-DDs that are also provided to VVB for assessment. Please clarify 3. Under section B.1 of MR, the technical specifications provided for certain CEPs are inconsistent with details provided in corresponding VPA-DDs (please check comments in MR for exact inconsistencies highlighted). Please clarify. 4. At several locations within MR, the VPAs have been referred to as 'CPA's, which is a CDM specific terminology. Please clarify. 5. Bank of India (BOI) has been mentioned as one of the VPA implementers for VPA5. However, the information is not found consistent with VPA-DD, which does not list BOI as an implementer. Please clarify 6. Several data points were found inconsistently reported in the MR when compared with ER sheet and VPA-DD (specific comments raised in MR). PP shall take corrected actions as needed. 	
Project participant response	Date : 25/10/2022
<ol style="list-style-type: none"> 1. The data filled in Table 1 of MR (below cover age) has been made consistent with the data in ER sheets. Revised MR has been submitted. 2. The crediting period dates provided in section A.4 of the MR have been made consistent with VPA-DD and CDM-PDD. Revised MR has been submitted. 3. Under section B.1 of MR, the technical specifications have been made consistent with the VPA-DD. Revised MR has been submitted. 4. All the reference of CPAs has been changed to VPAs in the MR. Revised MR has been submitted. 5. Bank of India (BOI) was part of CPA5 under CDM, however it has been removed from the VPA-DD. All the sales part of this partner has also been removed. MR has been corrected to make it consistent with VPA-DD and emission reduction sheet. Revised MR has been submitted. 6. All data points have been made consistent in the MR when compared with ER sheet and VPA-DD. Revised MR has been submitted. 	
Documentation provided by project participant	
Revised MR	
DOE assessment	Date: 28/10/2022
<ol style="list-style-type: none"> 1. The revised MR has been reviewed. PD has updated Table 1 of MR to be consistent with ER sheets, and hence, found to be appropriate. CLOSED 2. The revised MR has been reviewed. PD has corrected the crediting period dates provided under section A.4 of the MR. The updated crediting period was verified and found to be consistent with the VPA-DDs. CLOSED 3. The revised MR has been reviewed. The technical specifications are now made consistent with the VPA-DDs. CLOSED 4. The revised MR has been reviewed. The reference has been changed from VPA's to CPAs in all over MR. CLOSED 5. The revised MR and ER sheet has been reviewed. BOI has been removed as a VPA implementor from the ER sheet as well. Hence found to be appropriate. CLOSED 6. The revised MR has been reviewed. All the data points are now made consistent with VPA-DDs and ER sheet. CLOSED 	
CAR#02 is CLOSED.	

CAR ID	03	Section no.	E.6.4.2	Date : 25/10/2022
Description of CAR				
In addition to AMS-III.AR fixed parameter DV, parameters GFy and DBy are also mentioned in the VPA-DDs for VPAs 5,7,8 and 11. These parameters are missing in this MR. These parameters are also missing in VPA 04 VPA DD. PP shall clarify.				
Project participant response				Date : 25/10/2022
Only fixed parameter as per AMS III AR v7 is DV. GFy and DBy are part of the monitored parameters. The same has been made consistent in VPA-DD and MR. Revised documents have been submitted.				
Documentation provided by project participant				
Revised VPA-DD				
Revised MR				
DOE assessment				Date: 28/10/2022

The revised MR and revised VPA-DD has been reviewed. The parameters are now made consistent between the two documents. The methodology is also been reviewed and parameters are found to be appropriately added.

CAR#03 is CLOSED.

CAR ID	04	Section no.	E.5.6, E.5.4.2	Date : 10/10/2022
Description of CAR				
<ol style="list-style-type: none"> 1. In section D.2 of MR on page 68, it is stated that “The equipment used for testing is externally calibrated or newly purchased at the time of use, so measurements are done with the necessary guarantees.” However, no details have been provided for the date of purchase and/ or calibration of the equipment used for KPTs. PP shall clarify. 2. In section D.2 of MR, for parameter “Policy for encouraging discontinuation of baseline stove”, it is mentioned that “The end user training events were monitored to demonstrate that the users have been informed about use of project stoves and phase out of baseline stove”. However, the method of trainings and information disbursement, dates of these trainings or the format in which this information is being recorded have not been explained. PP shall explain the monitoring of this parameter and clarify how it is ensured that a dedicated training is provided to all end-users in this aspect. 				
Project participant response				Date : 25/08/2022
<ol style="list-style-type: none"> 1. Details on the calibration has been added to section D.2. of the MR. Additionally, training details has also been added in the relevant section. Revised MR has been submitted. 2. Partner organizations (POs) who are part of the programme organize biweekly and weekly meetings with end users. These meetings are used for product demonstrations, register grievances, impart training to end users on product and create awareness on health benefits for using clean energy products. POs create training material in local languages which is easier for end users to understand. As part of the agreement with PP, POs submit carbon use of funds report which has details on number of trainings conducted and if possible, to capture the impact. 				
Documentation provided by project participant				
Revised MR				
DOE assessment				Date: 28/10/2022
<ol style="list-style-type: none"> 1. The details of calibration and training details added has been reviewed and found to be appropriate as per the evidence submitted by the PD. CLOSED 2. PD has submit the carbon use of funds report to demonstrate the training conducted as stated. The document has been reviewed and found to be appropriate. and it is now evident that the regular training has been conducted with the end-users for product demonstrations, register grievances, impart training to end users on product and create awareness on health benefits for using clean energy products. CLOSED 				
CAR#04 is CLOSED.				

Table 4. FAR from this verification

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