




**Verification and certification report form for
CDM programme of activities
(Version 04.0)**

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION

Title and UNFCCC reference number of the programme of activities (PoA)	10341: MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa		
Version number(s) of the PoA-DD(s) to which this report applies	6		
Version number of the verification and certification report	1.1		
Completion date of the verification and certification report	12/08/2021		
Monitoring period number and duration of this monitoring period	Monitoring period: Second Monitoring period duration: 26/03/2020 to 31/12/2020 (including both days)		
Number and version number of the monitoring report to which this report applies	Number of monitoring report: 2 Version of monitoring report: 4, dated 08/08/2021		
Coordinating/managing entity (CME)	MicroEnergy Credits Corp		
Host Parties	Host Parties of the PoA	Is this a host Party to a CPA covered in this report? (yes/no)	
	Kenya	Yes	
	Uganda	No	
Applied methodologies and standardized baselines	Applied methodologies: 1. AMS-III.AR “Substituting fossil fuel based lighting with LED/CFL lighting systems” (Version 5) 2. AMS-II.G: “Energy efficiency measures in thermal applications of non-renewable biomass” (Version 08) 3. AMS III.AV: “Low greenhouse gas emitting water purification systems” (Version 05) Standardized baseline: NA		
Mandatory sectoral scopes	1: Energy industries (renewable - / non-renewable sources) 3: Energy demand		
Conditional sectoral scopes, if applicable	None		
Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report	17,241 tCO ₂ e		
Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs	Amount before 1 January 2013	Amount from 1 January 2013 until 31 December 2020	Amount from 1 January 2021

covered in this report	0 tCO ₂ e	18,006 tCO ₂ e	0 tCO ₂ e
Name and UNFCCC reference number of the DOE	Earthood Services Private Limited: E0066		
Name, position and signature of the approver of the verification and certification report	 Dr. Kaviraj Singh Managing Director		

SECTION A. Executive summary

The PoA under verification involves the disbursement of Clean Energy Products (CEP) in East African nations Kenya and Uganda. The CEPs distributed are Improved Cook Stoves (ICS), Water Purifiers (WPS) and Solar Lighting Systems (SLS).

This distribution takes place with the help of Partner Organisations (PO), which work on the grass-root level. The CEP's distribution results in a reduction of GHG emission that would have been generated in the absence of implementation of this PoA. The CME (MicroEnergy Credits Corp) develops programs with the help of POs (microfinance institution), and then trains it to implement the program, which includes business planning, capacity building, marketing of CEP, education, and knowledge on supply chain processes. CME then implements a tracking and monitoring system, which is to ensure a transparent quantification and record keeping of CERs generated through the program developed with the POs.

The households in areas where the PoA implementation has taken place use inefficient traditional cookstoves for cooking. It has been replaced with improved cookstoves which combust fuel more efficiently than traditional cookstoves, resulting in the lesser generation of GHG and particulate matter.

Distribution of water purifiers results in access to safe drinking water to households while reducing the emissions from boiling of water in areas where boiling is the general practice before water consumption. This results in reduced fuel usage, and thus reduced GHG emissions.

The solar lighting systems provided under this PoA result in the fulfilment of lighting needs through renewable alternatives, which declines the dependency of the population on kerosene based lamps.

The PoA is primarily aimed at marketing, distribution, and finance of Clean Energy Products (CEPs) such as Solar Lighting Systems, Efficient charcoal/wood based cook stoves, and Water Purifiers for low income households and microentrepreneurs in Kenya and Uganda. The fuel used for cooking, lighting, or boiling water (for purification) would be reduced significantly from usage of these project devices, thus reducing the consumption of non-renewable fuels. The introduction of improved or renewable energy based technologies (CEPs) into the households, primarily in the rural areas of Kenya and Uganda, would reduce the carbon emissions.

In the current issuance, two of the above technologies are included in the CPAs i.e. solar lighting systems and improved cookstoves. However, no improved cookstoves have been implemented by the end of this monitoring period.

The partner organizations (POs) control clean energy lending units and also act as CPA implementers. There are different POs in Africa, which in partnership with MEC developed a clean energy-lending program to offer the CEPs included in the PoA. The POs and CME keep track of the list of CEP installations concerning to the PoA in the electronic Credit Tracker Platform.

Under the CPA being verified for this issuance, MicroEnergy Credits works with POs listed below-

S.no	CPA Ref No.	Partner Organisations
1.	10341-P1-0002-CP1	Equity Bank, d.light, SolarNow
2.	10341-P1-0003-CP1	Equity Bank, Juhudi, d.light, SolarNow

The CEP users sign a title transfer with the PO while purchasing the product. The title transfer affirms the legal rights of the carbon credits generated by the CEP to the POs. The PO has signed the standard contractual agreement with the CME (MEC) to participate in the PoA, which guides the transfer of the emission reduction rights to the CME (MEC). Each PO has a mechanism of allocating at least three unique identifiers to each CEP so that there is no inter and/or intra-CPA double counting.

Scope of verification:

The verification is an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE. The verification includes the implementation and operation of the PoA as set out in the revised accepted PoA-DD/4/ & revised accepted CPA-DDs/9/ in the monitoring period for the CPAs included in this issuance i.e. 10341-P1-0002-CP1 and 10341-P1-0003-CP1. The verification tests the data and assertions set out in the monitoring report based on the following:

The verification tests the data and assertions set out in the monitoring report prepared for this monitoring period by the CME and is based on the following:

1. The approved methodology AMS II.G "Energy efficiency measures in thermal applications of non-renewable biomass" (version 08)/7/, AMS III.AV "Low greenhouse gas emitting water purification

systems" (Version 05)/8/ and AMS-III.AR "Substituting fossil fuel based lighting with LED/CFL lighting systems" (Version 5)/6/ applied in the POA-DD & CPA-DD

2. The registered and/or revised accepted PoA DD & revised accepted CPA-DD and monitoring plan
3. 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
4. The CDM Validation and Verification Standard for PoA Version 02/1/
5. The CDM Project Standard for PoA Version 02/2/ and Project Cycle Procedure for PoA Version 02/3/
6. Relevant decisions, guidance and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the project activity's reported emission reductions

The verification has considered both quantitative and qualitative aspects of stated/reported emission reductions. The monitoring report (all versions) and corresponding supporting documentation was assessed in accordance with the rules defined by UNFCCC, 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 CDM Quality Manual, which includes the following steps;

1. Contract with MicroEnergy Credits Corp and appointment of verification team and technical review team (refer Section B.1 and B.2 of this report)
2. Completeness check of Monitoring Report
3. Publication of Monitoring Report at UNFCCC website
4. Desk review (refer Section D.1 of this report) of Monitoring Report and corresponding ER sheet by verification team and planning of onsite/ remote audit (including sampling approach (refer Section D.4 of this report) to be applied)
5. On-site audit/ remote audit (refer Section D.2 of this report)
6. Follow up activities e.g., interviews (refer Section D.3 of this report)
7. Reporting and closure of findings (CARs/CLs/FARs) and preparation of draft verification report (refer Section D.5 of this report)
8. Independent technical review (refer Section F of this report) of the draft verification report and final/revised documentation (e.g., Monitoring Report, corresponding ER sheet and pieces of evidence)
9. 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).
10. Issuance of final verification report to contracted CME (or authorized representatives) and submission of a request for issuance, as appropriate.

Verification Conclusion:

Based on the outcome of the verification process of the registered PoA "MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa"/4/ and its CPAs "10341-P1-0002-CP1" and "10341-P1-0003-CP1", for the monitoring period 26/03/2020 to 31/12/2020 (including both dates), we confirm that the implementation of referenced registered PoA and CPA is complying with applicable CDM rules and regulations as stated in the Monitoring Report (final) Version 4 dated 08/08/2021 /12/. The GHG emission reductions were calculated correctly based on the applied methodologies and the monitoring plan contained in the revised accepted PoA-DD.

Earthood Services Private Limited was able to certify that the emission reductions from the registered CDM PoA UN#10341 "MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa" in Kenya during the period 26/03/2020 to 31/12/2020 (including both days) amount to 18,006 tCO_{2e}. Therefore, this is being submitted for the request for issuance, as per UNFCCC procedures.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	Guleria	Shifali	Central Office	Y	N	Y	Y
2.	Verifier	IR	Sahni	Rahi	Central Office	Y	N	Y	Y
3.	Methodological expert	IR	Guleria	Shifali	Central Office	Y	N	Y	Y
4.	Methodological expert	IR	Kumar	Sanjeev	Central Office	Y	N	N	Y
4.	Technical Expert (TA1.2, TA3.1)	IR	Guleria	Shifali	Central Office	Y	N	Y	Y
5.	Local expert	EI	Njeri	Virginia	Central Office	Y	N	Y	Y

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Mahala	Deepika	Central office
2.	Expert (TA1.2 and TA3.1) to TR	IR	Mahala	Deepika	Central office
3.	Approver	IR	Singh	Kaviraj	Central office

SECTION C. Application of materiality in conducting the verification

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to 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 enter the details in credit tracker platform at the time of installation. POs also conduct an internal check to verify the accuracy of data entry.	On a sampling basis, the records are checked with the information from the credit tracker platform and substantiated by questions asked during the remote surveys of end-users. The familiarity of PO representatives with the tracker platform is also checked.
2.	Erroneous consideration of technical specifications of CEPs (especially for solar	Low	The technical specifications are provided by the manufacturer	Technical specifications of each CEP model are checked against the document issued by

	CEPs)			the manufacturer.
3.	Observational error by baseline survey staff of CME/CPA implementer while recording the responses of users during distribution of the technology	Med	An erroneous entry while recording the baseline of the device at the time of product distribution can lead to overestimation of calculated CERs. If there are discrepancies, they are to be dealt with as per the materiality guidelines. However, since training has been provided to members of CME and POs for baseline recording, risk of error is low.	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 survey result for that parameter is to be discarded.
4.	Calculation and referencing errors in ER sheet	Low	The ER calculations are cross-checked by using two different methods of calculation and comparing the results, therefore occurrence of error is less likely. However, referencing errors within the ER sheet may occur.	All calculations and referencing will be checked by verification team with respect to applicable requirements under various documents viz., methodology, PoA DD, CPA DD etc.

C.2. Consideration of materiality in conducting the verification

In accordance with CDM VVS for PoAs, Version 02.0 the prescribed thresholds for materiality for CDM PoAs are as under;

Type of PoA	PoAs comprising large-scale CPAs			PoAs comprising only small-scale CPAs	PoAs comprising only micro-scale CPAs
Emission Reductions (tCO ₂ e)/year	500,000 or more	300,001 to 499,999	300,000 or less		
Materiality Threshold	0.5%	1.0%	2.0%	5.0%	10.0%

The applicable materiality threshold is 5% as PoA comprises only small-scale CPAs.

Particulars / Monitoring Report	MR Version (Public)	MR Version (Revised/Final)
Emission Reductions Achieved (tCO ₂ e) in this monitoring period	18,027 tCO ₂	18,006 tCO ₂
Applicable Threshold (%) as per CDM VVS for PoAs Version 02.0	5.0%	5.0%

Monitored Parameter (Symbol / Description)	Reporting Frequency	Number of Discrete Data (Total) Total (100%)	Sample selected for verification Sample (%)	Type of error identified	Impact on ERs	
					ERs impacted (Sample)	ERs impacted (extrapolate for population)
CPA 10341-P1-0002-CP1						
For solar CEPs						
N _{i,j}	Annual	698,809 ¹ (This is the total number of lamps distributed by POs to households)	57 (SLS details are recorded once at time of sale and all lamps are assumed to be operational for this monitoring	None	NA	NA

			period)			
GF _y	Default	1	1 (The grid factor was cross-checked with the methodology AMS-III.AR)	None	NA	NA
DB _y	Default	1	1 (default value based on selecting Option-1 for baseline)	None	NA	NA
OF _{y,i,j}	Default	1	1 (default value based on selecting Option-1 for baseline)	None	NA	NA
Lamps _{baseline}	Recorded only once	698,809 ¹	57 (Fuel used in the baseline lamp is recorded once at the time of sales)	None	NA	NA
CPA 10341-P1-0003-CP1						
<u>For solar CEPs</u>						
N _{i,j}	Annual	648,832 ² (This is the total number of lamps distributed by POs to households)	56 (SLS details are recorded once at time of sale and all lamps are assumed to be operational for 3 years from installation-AMS.III.AR para 18)	None	NA	NA
GF _y	Default	1	1 (The grid factor was cross-checked with the methodology AMS-III.AR)	None	NA	NA
DB _y	Default	1	1 (default value based on selecting Option-1 for baseline)	None	NA	NA
OF _{y,i,j}	Default	1	1 (default value based on selecting Option-1 for baseline)	None	NA	NA
Lamps _{baseline}	Recorded only once	648,832 ²	56 (Fuel used in the baseline lamp is recorded once at the time of sales)	None	NA	NA

¹ A total of 698,809 solar lamps displaced kerosene lamps (baseline device) in 143,750 households in CPA 10341-P1-0002-CP1 by end of this monitoring period

² A total of 648,832 solar lamps displaced kerosene lamps (baseline device) in 135,460 households in CPA 10341-P1-0003-CP1 by end of this monitoring period

SECTION D. Means of verification

D.1. Desk/document review

The desk review involves:

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan, the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- 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: NA*				
No.	Activity performed on-site	Site location	Date	Team member

*No site visit was conducted for this batched issuance due to outbreak of global pandemic Covid-19 and increased risk of exposure and contraction due to travel.

VVS requirement for mandatory on-site inspection:

According to CDM VVS for PoA paragraph 321/1/, it is mandatory for the DOE to conduct an on-site inspection at verification for the included CPAs if:

1. *It is the first verification for the DOE with regard to this CPA;*
2. *More than three years have elapsed since the last on-site inspection conducted for verification for the CPA;*
3. *The CPA has achieved more than 300,000 tCO₂eq of GHG emission reductions or net anthropogenic GHG removals since the last verification when an on-site inspection was conducted.*

The CPAs covered in this verification are CPA 10341-P1-0002-CP1 and 10341-P1-0003-CP1, for which on-site visit is mandatory since no on-site inspection has been conducted; this is the first verification for both CPAs. However, due to the ongoing COVID-19 pandemic, DOE verification team conducted remote surveys for the CEPs and the DOE sample size is based on random sampling (discussed in Section D.4 of this report).

The Executive Board of the Clean Development Mechanism (CDM) agreed during the 110th meeting/15/, on an exceptional basis, considering the COVID-19 pandemic, to extend the period in which CDM Designated Operational Entities (DOEs) may apply alternative measures of validation/verification to mandatory on-site inspections until 31 December 2021.

Scenario applying to the PoA UN 10341 Monitoring Period 2 (Batch B2)

This is the first verification for both CPAs being verified under this request for issuance, which makes it mandatory for DOE to conduct a site visit.

The CPAs being verified are based in Kenya and the DOE office is based in India. The Indian Government has several restrictions on international travel/30/ due to global pandemic Covid-19. Although international travel is allowed to some extent on a case-to-case basis, the Coronavirus-induced suspension of scheduled international flights has been extended till 31/07/2021 by Directorate General of Civil Aviation (DGCA) /32/. Although India has signed a bilateral air bubble to resume flights with Kenya, both the CPA host country i.e., Kenya and country where DOE office is based are currently experiencing a fairly large number of Covid-19 cases/34/35/.

The DOE also launched Interim Travel Policy in response to Covid-19, according to which ESPL continues to discourage all domestic and international travel, in accordance with WHO Coronavirus disease (COVID-19) travel advice. Employees are encouraged to consider personal health while making travel plans considering the conditions required for returning to work after travelling. In case on-site visit is conducted, the interim travel policy requires auditors to undergo 14 days of home quarantine in case of international travel.

It was clarified by the CME that the reason for not being able to postpone the mandatory site visit is the CER commitments (ERPA) signed with the CER buyers, which cannot be delayed. A copy of the agreement is shared by CME which defines the issuance schedule of the PoA/31/. As per the agreement, the issuance for this monitoring period is expected by September 2021. For the CME to be able to generate revenue from this batch, requesting the issuance is needed to be processed promptly such that all stages of issuance request are completed by the due date. The CME relies upon the CER revenue generated from these issuances for the working capital of the project.

Therefore, for reasons provided above, and in line with UN EB guidelines, the verification team conducted the verification for this batch using alternative means as defined in the CDM VVS-PoA, ver. 2.0/1/.

DOE verification team applied standard auditing techniques while verifying the PoA verification, as discussed below.

Alternative means used by DOE:

Alternative means used by DOE for purpose of inspection and verification of project details are listed below:

1. Telephonic interviews with end-users. 10 end-users each were picked randomly under each CPA from the project database, with whom remote surveys were conducted. The sampling approach used by DOE is discussed elaborately in section D.4 below.
2. Remote interviews (telephonic calls) with the representatives of CME and partner organizations to discuss the implementation of CPA and monitoring procedures for various parameters.
3. Review of documentary evidence and supporting documents including sales receipts, monitoring surveys, technical specifications of CEPs, water quality reports, etc. Credit tracker platform screenshots were also obtained and reviewed for identification of end-users while conducting remote surveys. The entire list of documents reviewed for purpose of verification is available in Appendix 3 of this report.

These alternative methods were considered sufficient by the verification team for this request for issuance and provide the DOE verification team with enough evidence to arrive at a verification conclusion.

D.3. Interviews

No	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1	Njorge	Mariam	CME representative	20/07/2021	CPA implementation, ER calculations	Shifali Guleria (SG), Rahi Sahni (RS), Virginia Njeri (VN)
2	Ayombe	Trevor	CME representative	20/07/2021	CPA implementation	SG, RS, VN
3	Maina	Susan	CME representative	20/07/2021	CPA implementation, Monitoring procedures	SG, RS
4	Bansal	Abhishek	CME representative	20/07/2021	ER calculations, compliance of monitoring plan	SG, RS
CEP USERS						
1.	Chikuta	Douglas	SLS user	20/07/2021	DOE remote survey	SG
2.	Musindalo	Pelentina Achieng	SLS user	20/07/2021	DOE remote survey	SG
3.	Akinyi	Vivian	SLS user	20/07/2021	DOE remote survey	SG
4.	Nthiga	Njue	SLS user	20/07/2021	DOE remote survey	SG
5.	Napa	Denish Ochieng	SLS user	20/07/2021	DOE remote survey	SG

6.	Mkwavi	Mose	SLS user	20/07/2021	DOE remote survey	SG
7.	Minis	Titile	SLS user	20/07/2021	DOE remote survey	SG
8.	Odhiambo	Kennedy Ouma	SLS user	20/07/2021	DOE remote survey	SG
9.	Chepkwony	James	SLS user	20/07/2021	DOE remote survey	SG
10.	Luvisia	Erick	SLS user	20/07/2021	DOE remote survey	SG
11.	Kimisoi	Lemashon	SLS user	20/07/2021	DOE remote survey	RS, VN
12.	Moraa Mosingi	Grace	SLS user	20/07/2021	DOE remote survey	RS, VN
13.	Archibald Ngere	George	SLS user	20/07/2021	DOE remote survey	RS, VN
14.	Atieno Oduor	Caren	SLS user	20/07/2021	DOE remote survey	RS, VN
15.	Rajoro	Charles	SLS user	20/07/2021	DOE remote survey	RS, VN
16.	Kimunge	Gilbert	SLS user	20/07/2021	DOE remote survey	RS, VN
17.	Auma Okoth	Josphine	SLS user	20/07/2021	DOE remote survey	RS, VN
18.	Wanyonyi Wanjala	Andrew	SLS user	20/07/2021	DOE remote survey	RS, VN
19.	Ntanin Rokoi	Susan	SLS user	20/07/2021	DOE remote survey	RS, VN
20.	Omondi Oguyo	Leonard	SLS user	20/07/2021	DOE remote survey	RS, VN

D.4. Sampling approach

CME's sampling approach:

Since only solar lighting systems have been distributed in both CPAs till end of this MP, applied methodology AMS-III.A.R version 5.0 has been applied in the PoA for SLS, according to which all project lamps are assumed to operate for first two years after distribution to end users. Since data recording is only required to be conducted at the time of distribution and no-ex post monitoring surveys are required to be conducted under option-1 or option- 2 for first crediting year, no sampling approach is applied for solar lighting systems.

DOE's Sampling approach:

Since monitoring by CME was not required for solar lighting systems under the applied methodological options in CPA-DD, the verification team applied a sampling approach choosing a confidence/precision of 90/30. The approach is in accordance with requirements of paragraph 26 and 27 of Standard for Sampling and surveys for CDM project activities and programmes of activities. Based on observations from the remote audit, DOE decided if technology SLSs distribution and data recording is in line with the requirements of CPA-DDs/9/, PoA-DD/4/ and applied methodology/6/.

The verification team determined the sample size using Raosoft website/33/, where information including total number of households with project SLSs in the CPA and desired confidence precision (90/30) was fed and a resulting sample size was obtained. The minimum number of samples required to be verified was 8 for each CPA. The verification team remotely surveyed a total of 10 households per CPA (2 household as part of over sampling).

The sample size thus obtained was broken down proportionally to the number of lamps distributed in each household, to ensure representativeness of the samples selected. In order to ensure that the samples are randomly selected, excel random function was applied. The number of samples selected and verified have been demonstrated in the table below:

CPA 10341-P1-0002-CP1

Number of Lamps distributed in each household	Total number of households included in each group*	Percentage households from total Population	Total number of samples required (rounded values)	Total number of households verified	Total number of lamps verified
1-4	10,729	7.5%	1	2	7
5-10	13,2920	92.47%	7	7	35
>10	101	0.07%	0	1	15

*A total of 698,809 solar lamps have been distributed in CPA under issuance to 143,750 households on which sampling was applied by the verification team

CPA 10341-P1-0003-CP1

Number of Lamps distributed in each	Total number of households included in each group*	Percentage households from total Population	Total number of samples required (rounded	Total number of households verified	Total number of lamps verified
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household			values)		
1-4	14,289	10.55%	1	1	4
5-10	121,150	89.44%	7	8	40
>10	21	0.02%	0	1	12

*A total of 648,832 solar lamps have been distributed in CPA under issuance to 135,460 households on which sampling was applied by the verification team

All lamps distributed in each household were verified during the remote surveys. Thus, 10 households were remotely surveyed by verification team for each CPA, resulting in verification of total 57 lamps for CPA 10341-P1-0002-CP1 and 56 lamps for 10341-P1-0003-CP1.

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

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
General			
Compliance of the monitoring report with the monitoring report form	-	-	-
Remaining forward action requests from validation and/or previous verifications	-	-	-
CPAs considered for verification and covered in this report	-	-	-
Programme of activities	-	-	-
Compliance of the programme implementation with the registered PoA-DD	-	-	-
Implementation and operation of the management system	-	-	-
Post-registration changes	-	-	-
• Corrections	-	-	-
• Inclusion of a monitoring plan	-	-	-
• Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents ³	-	-	-
• Changes to the programme design	-	-	-
• Addition of CPA inclusion template	-	-	-
• Change of coordinating/managing entity	-	-	-
• Changes specific to afforestation and reforestation activities	-	-	-
Component project activities			
Compliance of the CPA implementation with the included CPA design document	CL#01	-	-
Post-registration changes	-	-	-
• Temporary deviations from registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents	-	-	-
• Corrections	-	-	-
• Changes to the start date-of the crediting period	-	-	-
• Inclusion of a monitoring plan	-	-	-
• Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	-	CAR#01	-
• Changes to the project design	-	-	-
• Changes specific to afforestation and reforestation activities	-	-	-
Compliance of the registered monitoring plan with applied	CL#02	-	-

³ Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

methodologies and standardized baselines			
Compliance of monitoring activities with the registered monitoring plan	-	-	-
• Data and parameters fixed ex ante or at renewal of crediting period	-	-	-
• Data and parameters monitored	-	CAR#02	-
• Implementation of sampling plan	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	-	-	-
• Calculation of baseline GHG emissions or baseline net GHG removals by sinks	-	-	-
• Calculation of project GHG emissions or actual net GHG removals by sinks	-	-	-
• Calculation of leakage GHG emissions	-	-	-
• Summary of calculation of GHG emission reductions or net GHG removals by sinks	-	-	-
• Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA	-	-	-
• Remarks on difference from estimated value in included CPA	-	CAR#03	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (please specify)	-	-	-
Total	2	3	0

SECTION E. Verification findings

E.1. General

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

Means of verification	The verification team has compared the final monitoring report /12/ with the applicable and latest monitoring report form, i.e. CDM-PoA-MR-FORM /13/.
Findings	None
Conclusion	The final Monitoring Report was prepared using latest correct template i.e. CDM-PoA-MR-FORM Version 04.0/13/. The verification team confirms that the monitoring report has been appropriately prepared using the applicable monitoring report form, and that all sections are completed inline to the guidelines.

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

This is the second monitoring period of the PoA. There are no remaining FARs from validation or previous verification relevant for this request for issuance.

E.1.3. CPAs considered for verification and covered in this report

Title and UNFCCC reference number of the CPA included in the PoA as of the end of this monitoring period	Is the CPA considered for this verification? (yes/no)	The date when the CPA was included	Version of the PoA-DD	Confirmation that a request for issuance including the CPA has been published for the previous monitoring period (Y/N)
MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa –CPA 01 and 10341-P1-0001-CP1	No	21/02/2017	Version number- 6	NA (CPA not included in this RFI)

MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa – Solar Lamps & Efficient cook stoves – 10341 –CPA-0002 and 10341-P1-0002-CP1	Yes	05/11/2020	Version number- 6	No (this is the first verification for this CPA)
MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa – Solar Lamps & Efficient cook stoves – 10341 –CPA-0003 and 10341-P1-0003-CP1	Yes	05/11/2020	Version number- 6	No (this is the first verification for this CPA)

E.2. Programme of activities

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

Means of verification

The revised accepted PoA involves the promotion, distribution and sale of improved cook stoves (ICS), Solar lighting systems (SLS) and water purification systems (WPS) in Kenya and Uganda. CME has implemented the CPA 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 is evident from the interviews conducted with CME and PO representatives. This is consistent with PoA DD /4/. This monitoring period includes the implementation and monitoring of two CPAs as part of the PoA. At present, five CPAs have been included in the PoA. However, by the end of second monitoring period, only three CPAs were included, which have been listed above in section E.1.3.

The implementation of CPAs (included in this request), as referenced above, is within the geographical boundary of the PoA DD, which constitutes the physical boundary as well.

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

CPA	CEPs Deployed	CEP model	PO/Implementer
10341-P1-0002-CP1	Solar Lighting System	Several	Equity Bank, SolarNow and d.light
10341-P1-0003-CP1	Solar Lighting System	Several	Equity Bank, Juhudi, SolarNow and d.light

Solar lighting systems implemented under the SSC-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.

Improved Cook Stoves implemented under the SSC-PoA are energy efficient cooking stoves using charcoal as its fuel. Through the introduction of ICS, the project activity is reducing the fossil fuel consumption of each household. However, no improved cookstoves have been implemented by the end of this monitoring period in either of the CPAs included in this RFI.

Technical specification of each type of CEP models /22/ are verified with the details provided by respective CEP suppliers /19/ and found to be consistent with the monitoring report.

As per the revised accepted PoA DD, 2 types of CEP are deployed under any CPA in either of the two combinations: ICS and Solar lamps together in one CPA or Water purification system and Solar lamps together in one CPA. The numbers of CEPs deployed under CPA has been confirmed by the monitoring database i.e. Credit Tracker Platform /16/,/24/.

The verification team has confirmed that the number of CEPs operational are under

the limit as set by the CME during the CPA inclusion and based on that, the achieved emission reduction (for type III technologies) were found as follows:

Technology	CPA	Emission Reduction
Solar Lamps	10341-P1-0002-CP1	9,228 tCO _{2e}
	10341-P1-0003-CP1	8,778 tCO _{2e}

The verification team was able to confirm that the quantity, specifications, and target group of the CEPs are consistent with the PoA DD /4/ and the CPA DDs/9/. Further, based on the review of Credit Tracker Platform /16/, and remote surveys conducted by verification assessment team during current verification, the verification team has found that:

- The CPAs are implemented within the boundary of the PoA as described in the revised accepted PoA-DD /4/.
- The CME is the same as that mentioned in the revised accepted PoA-DD/4/.
- The implementation and operation of the project activity has been conducted in accordance with the description contained in the revised accepted PoA-DD/4/ and CPA-DDs/9/.
- All physical features of the CPAs proposed in the CPA-DDs are in place.
- The project participants/CPA implementers have operated the CPAs as per the CPA-DDs.

The verification team summarizes major changes in CERs between web hosted MR and final version of MR for submission as follows:

CPA Ref No.	Monitoring Report (public) (tCO ₂)	Monitoring Report (final) (tCO ₂)
10341-P1-0002-CP1	9,231	9,228
10341-P1-0003-CP1	8,796	8,778

The verification team has conducted remote surveys with 10 households with SLs per CPA during current verification assessment. 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 Credit Tracker Platform screenshots and output files available with the CME. The operation of the CEPs was confirmed through remote surveys with the owners/representatives (of CEPs). The households were asked various questions to confirm the identity of the end user, the operational status of the CEPs, baseline technologies, among others.

The emission reductions being claimed during this monitoring period and the estimated emission reductions in the revised accepted CPA-DDs are given in the table below for the corresponding period:

CPA Ref No.	Estimated ERs (tCO ₂)	Actual ERs (tCO ₂)
10341-P1-0002-CP1	7,902	9,228
10341-P1-0003-CP1	9,339	8,778

The information (including data and variables) provided in the MR is found to be in-line with the description provided in the revised accepted PoA-DD/4/.

The verification team considers the programme implementation to be in line with the revised accepted PoA-DD. The PoA implementation complies with the PoA-DD, applied methodologies, tools, and forms. The monitoring report was compared and verified against the description provided in the revised accepted PoA-DD and found to be correct.

Findings

No findings.

Conclusion

a) The verification team confirms that the physical features (technology/type of CEP) of the implementation were in accordance with the revised accepted PoA-DD.

	<p>b) The actual operation is in line to CPA-DDs.</p> <p>c) The number of installations in CPAs for the type of CEPs were lower than the maximum quantity estimated in the CPA-DD in most cases. If the number exceeded the total quantity estimated in CPA-DD, the additional CEPs were not included in ER calculations; the value is capped at 650,000. The CEPs distributed were within the technology threshold, as proposed in the CPA-DD.</p> <p>d) Information concerning data and variables was identified and assessed for the estimated quantity of ERs in the CPA DD being surpassed by actual emission reductions, where relevant.</p>
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E.2.2. Implementation and operation of the management system

Means of verification	<p>Based on the interview of CME representatives, it is confirmed that the CME has organized 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. PO's staff, local distributors, technicians and other service providers involved in marketing of CEPs to concern households. The monitoring plan and procedures to identify each CEP sold has been followed by POs.</p> <p>MEC (MicroEnergy Credits Corp) is CME for the PoA and responsible for the inclusion of CPAs in the PoA. The Carbon Operation Manager of MEC is responsible for completion of the inclusion process.</p> <p>The CME maintains the training material that specifies the process of inclusion of CPA, referred to provide the training for individuals. The Carbon Operation Manager directly reports to CEO of CME and get the carbon expert assistance during the CPA inclusion process, if required.</p> <p>In order to improve the quality of management, annual internal audits were also conducted which was confirmed from the internal audit report/36/. The Carbon Operation Manager, CME and PO involved in the particular CPA, address the non-conformities identified during the audit. The information about the type of CEP installed under each CPA is stored in Credit Tracker Platform that is maintained by MEC (CME).</p> <p>The Credit Tracker Platform records the unique identification number, location, installation date, and usage status of each clean energy product (CEP) in CPA, helps to identify, locate and verify any or all of the CEP installations. CME has provided the tracker output file/16/ that is used to ensure that unique identification of CEPs can be tracked. This file has been verified for the number of CEP users, and to confirm if they were using it during the applicable CEP crediting period.</p> <p>The Carbon Operation Manager at the CME is responsible for QA/QC of the data, analysis and reporting into the monitoring report. For baseline survey data, trained staff conducts the surveys. The staff was interviewed and training records/17/,/18/ were checked to ensure that they were trained for conducting the surveys. The CME is responsible for QA/QC of the data, analysis and reporting into the monitoring report.</p> <p>For solar lighting systems, monitoring surveys are not required to be conducted since all distributed SLs are assumed to be operational for first two years of crediting, which is in line with revised accepted CPA-DDs and applied methodology AMS.III.AR version 5.0 (para 17 and 18).</p> <p>Original copies of sales notice/23/ and baseline survey forms are retained by the respective POs/CPA implementers. Loan agreements are digitally retained/23/. The organizational structure and roles and responsibilities for monitoring were in line with the CPA specific requirements, and this was confirmed during the remote audit conducted, and the structure was considered appropriate.</p>
Findings	No findings.
Conclusion	The verification team assessed the management systems in place to implement the

	monitoring of the PoA. This included the roles and responsibilities, data collection, transfer and aggregation procedures, data storage and archiving for the monitoring system. The roles and responsibilities, data collection transfer and aggregation procedures, data storage and archiving for the monitoring system have been provided in the MR /12/. The verification team confirms that the monitoring management system of the PoA is in place with the responsibilities properly identified and established.
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E.2.3. Post-registration changes

E.2.3.1. Corrections

The following approved corrections were made to the PoA (including the generic CPA(s)) before this monitoring period–

Several editorial changes were introduced to the PoA-DD.

This version of PoA-DD (ver. 4) is effectively approved by CDM-EB on 10/11/2019 (PRC Reference number “PRC-10341-001”)/5/

The following approved corrections were made to the PoA (including the generic CPA(s)) applicable from this monitoring period–

Several editorial changes that have been introduced due to small errors in previous versions.

This version of PoA-DD (ver. 6) is effectively approved by CDM-EB on 09/05/2021 (PRC Reference number “PRC-10341-004”)/5/

There are no new corrections proposed in PoA-DD under this request for issuance.

E.2.3.2. Inclusion of a monitoring plan

Not applicable

E.2.3.3. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

The following approved permanent changes were made to the PoA before this monitoring period–

Inclusion of alternate approach as an option to calculate cookstove B_{old} value at PoA level by using the default value provided in methodology AMS-II.G.

This version of PoA-DD (ver. 4) is effectively approved by CDM-EB on 10/11/2019 (PRC Reference number “PRC-10341-001”)/5/

The following approved permanent changes were made to the PoA applicable from this monitoring period–

1. Clarification on efficiency degradation approach for determination of stove efficiency for ICS technology.
2. Addition of monitoring parameter- Lifespan

This version of PoA-DD (ver. 6) is effectively approved by CDM-EB on 09th May, 2021 (PRC Reference number “PRC-10341-004”)/5/

E.2.3.4. Changes to the programme design

The following approved design changes were made to the PoA before this monitoring period–

1. Addition of a new host country in the registered PoA, Uganda, thus resulting in expansion of the project boundary.
2. Addition of fNRB and Byold parameters for Uganda to enable addition of CPAs from Uganda.
3. Inclusion of provision to use either option-1 or option-2 from methodology AMS-III.AR paras 17 and 18, based on lamp technologies to be included in the CPA.

This version of PoA-DD (ver. 4) is approved by CDM-EB on 10/11/2019 (PRC Reference number “PRC-10341-001”)/5/

E.2.3.5. Addition of CPA inclusion template

Not applicable

E.2.3.6. Change of coordination/managing entity

Not applicable

E.2.3.7. Changes specific to afforestation and reforestation activities

Not applicable

E.3. Component project activities**E.3.1. Compliance of the CPA implementation with the included CPA design document**

Means of verification	<p>The CPAs 10341-P1-0002-CP1 and 10341-P1-0003-CP1 described in this section target the promotion, distribution and sale of different models of solar lighting systems implemented in this PoA.</p> <p>MicroEnergy Credits Corp is the Coordinating and Managing Entity (CME) for the implementation of CPA. The CME coordinates and manages each Partner Organization (PO) and assists them in implementing each element of the monitoring plan.</p> <p><u>Solar Lighting Systems</u></p> <table border="1"> <thead> <tr> <th>CPA Ref. #</th><th>10341-P1-0002-CP1</th><th>10341-P1-0003-CP1</th></tr> </thead> <tbody> <tr> <td>Inclusion date</td><td>05/11/2020</td><td>05/11/2020</td></tr> <tr> <td>Location</td><td>Kenya</td><td>Kenya</td></tr> <tr> <td>CEP Type</td><td>Solar lighting system</td><td>Solar lighting system</td></tr> <tr> <td>CEP Model</td><td> d.light D100 d.light D150 d.light D31 d.light X1000 d.light X2000 d.light X740 d.light X850 d.light X850 Plus d.light D30 d.light X1100 Solar Home System 50W Solar Home System 100W Solar Home System 250W Solar Home System 150W Solar Home System 500W Solar Home System 1000W Solar Home System 3000W Solar Home System 2250W Solar Home System 1500W Sunking Pro-2 d.light D330 Niwa Multi 300XL Sunking HLS d.light S300 Niwa Home 200 Sunking Boom </td><td> d.light D100 d.light D150 d.light D31 d.light X1000 d.light X2000 d.light X740 d.light X850 d.light X850 Plus d.light D30 Solar Home System 150W Solar Home System 500W Solar Home System 50W Solar Home System 250W Solar Home System 100W Sunking Boom Sunking HLS120 Plus Sunking HLS Msolar 6 Sunking Home 250 Orb Energy Sol-30 Orb Energy Sol-15 Orb Energy Sol-120 Orb Energy Sol-10 Solectric600 Msolar 55 Plus Aerial Orb Energy Sol-300 </td></tr> <tr> <td>CPA Implementer/ PO</td><td>Equity Bank, d.light, SolarNow</td><td>Equity Bank, Juhudi, d.light, SolarNow</td></tr> <tr> <td>Maximum Quantity of Solar lamps in operation (on any day during the current monitoring period)</td><td>650,000 (actual number of maximum operational solar lamps on any day is 668,863, but the value is capped in line with CPA-DD eligibility criteria)</td><td>648,832</td></tr> </tbody> </table>		CPA Ref. #	10341-P1-0002-CP1	10341-P1-0003-CP1	Inclusion date	05/11/2020	05/11/2020	Location	Kenya	Kenya	CEP Type	Solar lighting system	Solar lighting system	CEP Model	d.light D100 d.light D150 d.light D31 d.light X1000 d.light X2000 d.light X740 d.light X850 d.light X850 Plus d.light D30 d.light X1100 Solar Home System 50W Solar Home System 100W Solar Home System 250W Solar Home System 150W Solar Home System 500W Solar Home System 1000W Solar Home System 3000W Solar Home System 2250W Solar Home System 1500W Sunking Pro-2 d.light D330 Niwa Multi 300XL Sunking HLS d.light S300 Niwa Home 200 Sunking Boom	d.light D100 d.light D150 d.light D31 d.light X1000 d.light X2000 d.light X740 d.light X850 d.light X850 Plus d.light D30 Solar Home System 150W Solar Home System 500W Solar Home System 50W Solar Home System 250W Solar Home System 100W Sunking Boom Sunking HLS120 Plus Sunking HLS Msolar 6 Sunking Home 250 Orb Energy Sol-30 Orb Energy Sol-15 Orb Energy Sol-120 Orb Energy Sol-10 Solectric600 Msolar 55 Plus Aerial Orb Energy Sol-300	CPA Implementer/ PO	Equity Bank, d.light, SolarNow	Equity Bank, Juhudi, d.light, SolarNow	Maximum Quantity of Solar lamps in operation (on any day during the current monitoring period)	650,000 (actual number of maximum operational solar lamps on any day is 668,863, but the value is capped in line with CPA-DD eligibility criteria)	648,832
CPA Ref. #	10341-P1-0002-CP1	10341-P1-0003-CP1																					
Inclusion date	05/11/2020	05/11/2020																					
Location	Kenya	Kenya																					
CEP Type	Solar lighting system	Solar lighting system																					
CEP Model	d.light D100 d.light D150 d.light D31 d.light X1000 d.light X2000 d.light X740 d.light X850 d.light X850 Plus d.light D30 d.light X1100 Solar Home System 50W Solar Home System 100W Solar Home System 250W Solar Home System 150W Solar Home System 500W Solar Home System 1000W Solar Home System 3000W Solar Home System 2250W Solar Home System 1500W Sunking Pro-2 d.light D330 Niwa Multi 300XL Sunking HLS d.light S300 Niwa Home 200 Sunking Boom	d.light D100 d.light D150 d.light D31 d.light X1000 d.light X2000 d.light X740 d.light X850 d.light X850 Plus d.light D30 Solar Home System 150W Solar Home System 500W Solar Home System 50W Solar Home System 250W Solar Home System 100W Sunking Boom Sunking HLS120 Plus Sunking HLS Msolar 6 Sunking Home 250 Orb Energy Sol-30 Orb Energy Sol-15 Orb Energy Sol-120 Orb Energy Sol-10 Solectric600 Msolar 55 Plus Aerial Orb Energy Sol-300																					
CPA Implementer/ PO	Equity Bank, d.light, SolarNow	Equity Bank, Juhudi, d.light, SolarNow																					
Maximum Quantity of Solar lamps in operation (on any day during the current monitoring period)	650,000 (actual number of maximum operational solar lamps on any day is 668,863, but the value is capped in line with CPA-DD eligibility criteria)	648,832																					

	Maximum Estimated Qty of Solar Lamps in operation (as per CPA-DD)	550,000 for year 1 of crediting, and 650,000 at any point during the crediting period.	650,000 at any point during the crediting period.
	Estimated CERs (comparable period)	7,902 tCO _{2e}	9,339 tCO _{2e}
	Actual CERs from the CEP Type	9,228 tCO _{2e}	8,778 tCO _{2e}
<p>Technical specifications for all solar lighting system models /22/ were checked by assessment team against the manufacturer specifications and additional third-party test results to confirm that all models distributed under this CPA are in line with applied methodology requirements/6/, as listed below.</p> <ol style="list-style-type: none"> Rated average operational life of at least 10,000 hours Minimum one-year warranty (meeting the warranty requirements of the lighting global minimum quality standards) Minimum luminous flux of 25 lumens or 50 lux over an area equal or greater than 0.1m² when suspended at 0.75 meters DBT greater than or equal to 4 hours Details regarding type of charge controller, solar run time, battery type and capacity etc. in line with CPA-DD and applied methodology requirements Physical protection against environmental factors (eg rain, heat, insect ingress) <p>The solar lighting systems are sold to end users and the sales data is collected by means of loan documents/20/ at the time of sale to the end user. The technical specifications of solar light model were verified through the specifications provided by technology suppliers /22/ and found to be consistent with the monitoring report for the current verification. The reported technical specifications are also consistent with third-party test results for all distributed models. For remote surveys, the end users were asked various questions, to confirm the distribution of said models. It has been checked by the verification team that the verified CPA implementation is below its annual small-scale threshold of 60,000 tCO_{2e}. In case of CPA 10341-P1-0003-CP1, the number of distributed SLS are within the maximum estimated operational units in the CPA-DD. For CPA 10341-P1-0002 CP1, the number of estimated units to be distributed were 550,000 for year 1 of crediting and 650,000 for any year of crediting. However, it is noted that:</p> <ol style="list-style-type: none"> Although 550,000 is the estimated number of units as per CPA-DD for the first year of crediting, footnote 2 of CPA-DD/9/ clarifies that actual sales volume might be different than those mentioned depending upon demand of the solar lamps. This is considered acceptable, unless maximum estimated amount (650,000) of lamps is exceeded and SSC-threshold for the technology is breached. On any day of the monitoring period, if the total number of operational lamps are higher than maximum estimated quantity i.e., 650,000, the additional solar lamps are not considered for emission reduction calculations. The number is capped at 650,000. The small-scale threshold for type III technologies is not breached during implementation of this CPA. <p>Therefore, the implementation of both CPAs is found in line with the CPA-DDs/9/, PoA-DD/4/ and applied methodology/6/.</p>			
Findings	CL#02 raised and resolved.		
Conclusion	<ol style="list-style-type: none"> The verification team confirmed through remote audit and review of the supporting documentation that physical features of the CPAs have been implemented in accordance with the revised accepted CPA-DDs/9/. No specific monitoring equipment had to be installed according to the monitoring plan. The CPAs were also found to be completely operational in line with the CPA-DDs. The information provided in the relevant sections of the monitoring report appropriately described the implementation status of the PoA. 		

	e) Assessment team also confirms that monitoring period is within the CPAs crediting periods.
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E.3.2. Post-registration changes**E.3.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents**

NA

E.3.2.2. Corrections

The following approved corrections were made to the PoA (including the generic CPA(s)) applicable from this monitoring period for both CPAs (10341-P1-0002-CP1 and 10341-P1-0003-CP1)–
Editorial changes that have been done either due to small errors in previous versions or to bring better clarity to statements

CPA ref number	PRC ref. number	Date of approval
10341-P1-0002-CP1	10341-006 /10/	11/06/2021 (effective approval on 10/06/2021)
10341-P1-0003-CP1	10341-007 /10/	25/05/2021

There are no new corrections proposed in CPA-DDs under this request for issuance.

E.3.2.3. Changes to the start-date of the crediting period

NA

E.3.2.4. Inclusion of a monitoring plan

NA

E.3.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

The following approved corrections were made to the PoA (including the generic CPA(s)) applicable from this monitoring period for both CPAs (10341-P1-0002-CP1 and 10341-P1-0003-CP1)–

1. Clarification on efficiency degradation approach for determination of stove efficiency for ICS technology.
2. Addition of monitoring parameter- Lifespan

CPA ref number	PRC ref. number	Date of approval
10341-P1-0002-CP1	10341-006 /10/	11/06/2021 (effective approval on 10/06/2021)
10341-P1-0003-CP1	10341-007 /10/	25/05/2021

No new changes have been proposed with this request for issuance.

E.3.2.6. Changes to the project design

NA

E.3.2.7. Changes specific to afforestation and reforestation activities

NA

E.3.3. Compliance of the registered monitoring plan with applied methodologies and standardized baselines

Means of verification	The monitoring plan as contained in the CPA-DD was reviewed against the monitoring requirements of the applied methodology AMS III.AR version 5 /6/ as well as PoA DD /4/ with reference to the technology involved. Based on this review, it was found the monitoring plan contained in the CPA-DD includes all the required parameters to be monitored in the context of the CPA design and description and allows appropriate determination of emission reductions in accordance with PoA DD /4/ and applied methodology AMS III.AR version 5 /6/.
Findings	CL#02 raised and resolved.
Conclusion	The monitoring plan is in accordance with the approved methodology, AMS III.AR version 5 /6/, that is included in the CPA-DD.

E.3.4. Compliance of monitoring activities with the registered monitoring plan**E.3.4.1. Data and parameters fixed ex ante or at renewal of crediting period****Default annual baseline emission factor for the project lamp, DV, tCO_{2e}**

Means of verification	The value of this parameter considered for the verification is mentioned below:		
	CPA Ref. No.	Value Applied	Consistency Checked with
	10341-P1-0002-CP1	0.092	CPA-DD /9/
	10341-P1-0003-CP1	0.092	CPA-DD /9/
Findings	No findings were raised.		
Conclusion	The values in the Monitoring Report /12/ and corresponding Emission Reduction Spreadsheet /14/ are consistent with the revised accepted PoA-DD /4/ and CPA-DD /9/. The applied values are correct and justified.		

E.3.4.2. Data and parameters monitored**Number of lights distributed to end users, i, type, j (Ni,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					
	How were the values in the monitoring report verified?	<p>The values reported in the final MR /12/ and ER sheet/14/ were verified through the output files of MEC Credit tracker platform provided by the CME.</p> <p>During the current monitoring period, CERs from a total of 698,809 lamps distributed in 143,750 households for CPA 10341-P1-0002-CP1 and 648,832 lamps distributed in 135,460 households for CPA 10341-P1-0003-CP1 have been calculated. Each device, and lamps therein, are considered operational for only the first two years of its crediting period, which is found to be in line with CPA-DD and applied methodology AMS-III.AR version 5.0 para 17.</p> <p>The verified value for the highest number of solar lamps operational at any point of till the end of current monitoring period is provided in table below:</p> <table><tr><td>CPA</td><td>Number of solar lamps deployed</td></tr><tr><td>10341-P1-0002-CP1</td><td>668,863</td></tr><tr><td>10341-P1-0003-CP1</td><td>648,832</td></tr></table> <p>It was noted that any point during the monitoring period when total number of operational CEPs was higher than the maximum count of estimated operational solar lamps provided in revised accepted CPA-DD (as is the case for CPA 10341-0002-CP1), the value is capped at 650,000 in line with CPA-DD.</p> <p>The verification team has verified the models distributed in the</p>	CPA	Number of solar lamps deployed	10341-P1-0002-CP1	668,863	10341-P1-0003-CP1
CPA	Number of solar lamps deployed						
10341-P1-0002-CP1	668,863						
10341-P1-0003-CP1	648,832						

		<p>current monitoring period and found the details provided in MR to be consistent with the technical specifications provided by respective product suppliers and the PoA-DD requirements. During the remote audit, end-users were remotely surveyed to ask about the name of model distributed in their household and where they could not read, ask about physical features of the device (colour of the device, if the light is wall mounted or hand held; number of lamps constituted in one lighting system etc.). The information thus obtained was cross-checked against technical specifications/22/ of the device and it was confirmed if it matched.</p> <p>Specific to distribution of solar CEPs, each household was found to be given a PO specific unique identifiers, also specific to the corresponding partner organizations, as listed below:</p> <table border="1" data-bbox="651 600 1428 1451"> <thead> <tr> <th>CPA Implementer</th> <th>Unique Identification - 1</th> <th>Unique Identification - 2</th> <th>Unique identification - 3</th> </tr> </thead> <tbody> <tr> <td>d.light</td> <td>Purchaser name (Customer name)</td> <td>Product unique identifier number (Product serial number)</td> <td>GPS location of the nearest branch of PO which services the household</td> </tr> <tr> <td>Juhudi</td> <td>Purchaser name (Customer name)</td> <td>National ID number</td> <td>Bank ID number</td> </tr> <tr> <td>Equity</td> <td>Purchaser name (Customer name)</td> <td>GPS location of the nearest branch of PO which services the household</td> <td>Bank ID number</td> </tr> <tr> <td>SolarNow</td> <td>Purchaser name (Customer name)</td> <td>Product unique identifier number (Product serial number)</td> <td>National ID number</td> </tr> </tbody> </table> <p>These unique identifier in line with footnote 3 of PoA-DD are used to establish that double counting doesn't occur and all devices are traceable to the household those were distributed to. The verification team checked the uniqueness of solar CEPs across the CPA from the database using Microsoft Excel based tools (eg. Conditional formatting to identify duplicate entries). All entries were found to be unique.</p>	CPA Implementer	Unique Identification - 1	Unique Identification - 2	Unique identification - 3	d.light	Purchaser name (Customer name)	Product unique identifier number (Product serial number)	GPS location of the nearest branch of PO which services the household	Juhudi	Purchaser name (Customer name)	National ID number	Bank ID number	Equity	Purchaser name (Customer name)	GPS location of the nearest branch of PO which services the household	Bank ID number	SolarNow	Purchaser name (Customer name)	Product unique identifier number (Product serial number)	National ID number
CPA Implementer	Unique Identification - 1	Unique Identification - 2	Unique identification - 3																			
d.light	Purchaser name (Customer name)	Product unique identifier number (Product serial number)	GPS location of the nearest branch of PO which services the household																			
Juhudi	Purchaser name (Customer name)	National ID number	Bank ID number																			
Equity	Purchaser name (Customer name)	GPS location of the nearest branch of PO which services the household	Bank ID number																			
SolarNow	Purchaser name (Customer name)	Product unique identifier number (Product serial number)	National ID number																			
	If applicable, has the reported data been cross-checked with other available data?	Yes. The information provided in the CPA credit tracker Database /16/ was verified randomly with the sales delivery note/21/ and loan document /20/ and through remote audit of surveyed SLS end-users.																				
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in	Solar light systems installation information was verified as maintained in the MEC tracker system/16/ 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 in place.																				

	place?	
Findings	CAR#02 raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan and applied methodology.	

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, ver. 5.0/6/.</p> <p>As per the applied methodology AMS-III.AR version 5.0 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 CPAs included in this RFI i.e. the distributed project lamps are charged by a renewable energy system (photovoltaic system). It is also demonstrated at the time of CPA-inclusion and is cross checked during current verification from project database and remote audit that the replaced lamps were kerosene lamps as per 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 inline with footnote 8 of applied methodology/6/.</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	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/9/ and applied methodology/6/.	

Dynamic baseline factor in year y (DBy), Fraction

Means of verification	Criteria/Requirements	Assessment/Observation
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	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, ver. 5.0/6/.</p> <p>According to applied methodology AMS-III.AR, ver. 5.0 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 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	No findings were raised.	
Ref?Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/9/ and applied methodology/6/.	

The percentage of project lamps distributed to end users that are operating and in service ($OF_{y,i,j}$), 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 value reported in the final MR is verified from the methodology AMS-III.AR, ver. 5.0/6/.</p> <p>According to applied methodology para 17, if option-1 is applied, then “project lamps are assumed to operate for two years after distribution to end-users”. If option-2 (para 18) is applied, all project lamps are still assumed to</p>

		<p>operate for first three years from installation. This is also cross-verified from para 26 of 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.</p> <p>Therefore, since CME has chosen option-1 for CPA 10341-P1-0002-CP1 and option-2 for 10341-P1-0003-CP1 from AMS-III.AR para 17 and 18 respectively in respective CPA-DDs, for the current monitoring period the percentage of project lamps distributed to end users that are operating and in service is acceptable as 100%. All solar lamps distributed in both CPAs are in their first year of installation during this monitoring period.</p> <p>It is noted that this parameter is notated as $f_{i,j}$ in PoA-DD, however, in MR, it has been notated as $OF_{y,i,j}$ to keep it in line with CPA-DDs/9/ and applied methodology AMS.III.AR version 5/6/.</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#02 raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/9/ and applied methodology/6/.	

This parameter would capture the fuel type for each baseline lamp that is getting replaced with the project lamps, and would ensure that project lamps are only distributed to the households which are using fossil fuel for lighting in the baseline lamps (Lamps_{baseline}), Fuel type consumed in the lamps

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Once at the time of sale of lamps
	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
	How were the values in the monitoring report verified?	<p>The information reported in the final MR and ER sheet was verified from the MEC tracker platform.</p> <p>The assessment team has verified the tracker output file/16/ provided by CME that includes consolidated list of all CEP sales made under the CPAs 10341-P1-0002-CP1 and 10341-P1-0003-CP1, and confirms that all users were using kerosene as their baseline lamp fuel.</p>

	If applicable, has the reported data been cross-checked with other available data?	The baseline device and fuel used were further checked through questions related to 'baseline lighting device and the fuel used' during the DOE remote audit conducted for households picked for DOE remote audit from each CPA. All surveyed households reported to have used kerosene lamps as baseline device.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/9/ and applied methodology/6/.	

E.3.4.3. Implementation of sampling plan

Means of verification	Not applicable, as sampling is not required for the parameters based on methodology AMS-III.AR, ver. 5.0 for this monitoring period. In line with applied methodology para 17 option-1 and para 18 option-2, the distributed solar lamps can be assumed 100% operational for this monitoring period, which covers first year of crediting after installation for all solar lamps distributed in both CPAs. Since CPA-DDs have already defined and fixed the methodological choices as the chosen approach for determining lamp effective useful life, no monitoring is required to be conducted for solar lamps distributed for this MP. The parameter values used were either default, based on methodological choices or recorded at the time of distribution. These monitored parameters and sources of their values are provided below:		
	Parameter	Parameter Description	Source
	$N_{i,j}$	Number of lights distributed to end users, i, type, j	Recorded at the time of sale of lamps
	GF_y	Grid factor in year y	Default value from AMS.III.AR (para 21)
	DB_y	Dynamic baseline factor in year y	Default value from AMS.III.AR (para 21 and parameter table 5)
	$OF_{y,i,j}$	The percentage of project lamps distributed to end users that are operating and in service	Based on methodological choice from AMS-III.AR (option-1 from para 17 or option-2 from para 18).
	$Lamps_{baseline}$	This parameter would capture the fuel type for each baseline lamp that is getting replaced with the project lamps, and would ensure that project lamps are only distributed to the households which are using fossil fuel for lighting in the baseline lamps	Recorded by CME/ PO at the time of sale of lamps.
Findings	No findings were raised.		
Conclusion	The sampling was not required, since default values or information recorded at the time of installation was used. This is acceptable, based on review of revised accepted CPA-DDs/9/, and methodology AMS-III.AR, ver. 5.0 /6/.		

E.3.5. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	No monitoring equipment was required to monitor the parameters, which was verified through the registered monitoring plan as outlined in the CPA-DDs/9/ and revised accepted PoA-DD/4/.
Findings	No findings were raised.
Conclusion	The verification team has determined that no monitoring equipment has been used by the CME. Therefore, there was no requirement of calibration. This was in

	accordance with the accepted monitoring plan/9/ and the applied monitoring methodology/6/.
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E.3.6. Assessment of data and calculation of emission reductions or net removals

E.3.6.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	<p>The verification team verified that</p> <ol style="list-style-type: none"> A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.3.4 of this report. 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.3.4 of this report. The calculations of baseline emissions as presented in the corresponding ER calculations sheet of final Monitoring Report was checked and found to be consistent with the formulae and methods described in the registered monitoring plan of each relevant CPA DD, PoA DD and the applied methodology. All assumptions used in the emission calculations were found appropriate and therefore, justified Appropriate emission factors, IPCC default factors and other reference values have been correctly applied. This has also been elaborated under Section E.3.4 of this report. No standardized baseline was prescribed in the PoA DD and therefore, it has not been applied. There is no pro-rate approach applied for the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol. <p>The following equations were used to determine the baseline emissions as provided in the monitoring report /12/ and applied in the corresponding ER calculations sheets /14/. The expressions used were found consistent with the revised PoA DD, CPA DDs and the applied methodology AMS-III.AR, version 5 /6/:</p> $DV = FUR \times O \times U \times EF \div 1000 \times LF \times n \times NTG$ <p>Where:</p> <p>DV = Lamp Emission Factor (default is 0.092 t CO₂e per project lamp)</p> <p>FUR = Fuel use rate (0.03 liters/hour)</p> <p>O = Utilization rate (3.5 hours/day)</p> <p>U = Annual utilization (365 days/year)</p> <p>EF = Fuel emissions factor (2.4 kgCO₂/liter)</p> <p>LF = Leakage factor (1.0)</p> <p>N = Number of fuel-based lamps replaced per project lamp (1.0)</p> <p>NTG = Net-to-gross adjustment factor (1.0)</p> <p>Baseline emissions are calculated per below equation:</p> $BE_y = DV \times GF_y \times DB_y$ <p>Where:</p> <p>BE_y = Baseline emissions per project lamp in year y (t CO₂e)</p>
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	<p>GF_y = Grid Factor in year y,</p> <ul style="list-style-type: none"> Equal to 1.0 when charging option defined in paragraph 3(a) of the methodology is used; which is indeed the case for this CPA, as the CPA uses charging option of Solar PV <p>DB_y = Dynamic Baseline Factor (change in baseline fuel, fuel use rate, and/or utilization during crediting period) in year y. Calculated as either:</p> <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)) <p>CPAs chose to apply option 1: hence default of 1.0 is considered</p>
Findings	No findings were raised.
Conclusion	<p>The verification team confirms that:</p> <ol style="list-style-type: none"> The complete data was available and is duly reported As indicated above, the description with regard to cross-check of reported data is included under the respective parameter (refer Section E.3.4 of this report). Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals were followed. Appropriate emission factors, IPCC default factors and other reference values were correctly applied. <p>There is no pro-rate approach applied in the current monitoring period as the entire monitoring period falls into a period that is after the end of the first commitment period of Kyoto Protocol.</p>

E.3.6.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	The PoA-DD/4/ and CPA-DDs/9/ do not prescribe any project emissions to be considered. In accordance with applied methodology AMS-III.AR para 23(a)/6/, no project emissions are considered from the CPAs since charging mechanism for all lamps distributed under these CPAs is renewable energy i.e. solar energy. The remote audit and project design also did not reveal any potential source to be considered in this regard.
Findings	No findings were raised.
Conclusion	No project emissions were required to be calculated.

E.3.6.3. Calculation of leakage GHG emissions

Means of verification	The PoA DD, CPA DD and applied monitoring methodology does not prescribe any leakage emissions to be considered. The remote audit and project design also did not reveal any potential source to be considered in this regard. However, the leakage factor (LF, assumed 1.0 as default value in applied methodology) has been accounted in baseline calculations under default value of parameter DV (Lamp Emission Factor).
Findings	No findings were raised.
Conclusion	No additional leakage were required in accordance with the methodology AMS-III.AR, version 5 /6/.

E.3.6.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	As discussed in the above sections, the entire emission reductions from the PoA were based on baseline emissions. The calculations presented in this regard in the final monitoring report and corresponding ER calculations sheets/14/ were found appropriate and comply with the provisions prescribed in the registered monitoring plan of CPA DDs/9/, PoA-DD/4/ and applied methodology/6/. Total emission reductions achieved in the current monitoring period by all types of lamps distributed in the relevant CPA is calculated using the following expressions:
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$$ER_y = \sum_{i,j} N_{i,j} \times (BE_{y,i} - PE_{y,i,j}) \times (OF_{y,i,j})$$

ER_y = Emission reductions in year y (t CO₂e)

N_{i,j} = Number of project lamps distributed to end users of type *i* with charging method *j*

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 30, for years 4, 5, 6 and 7

Since the solar lamps were distributed in a phased manner during the monitoring period, the number of crediting days vary for each device, depending on the installation date. The start of the crediting of CERs for each device is either from start date of crediting period of the CPAs (which is later than MP start date) or from the date of its installation, whichever is later.

The calculation applied in ER sheet was checked to ensure that all solar lamps were in their first year of crediting and therefore, assumed operational for the entire monitoring period (after start date of crediting period) in line with applied methodology. Although the monitoring period duration is 281 days, the effective number of days for which crediting is considered are 57 days, since crediting period for both CPAs started 57 days before end date of monitoring period. The same has been considered for calculating all actual and estimated values of emission reductions.

The equation provided in applied methodology calculates the emission reductions for the entire crediting year by accounting for total number of installed devices operational in a year. However, due to the number of operational solar devices being a different number on each day of the year (as explained above and evident from ER sheet) as a result of phased distribution of solar lamps, calculating emission reductions for a year as a whole would not account for the specific number of crediting days for devices that are phased in during that year.

Therefore, CME has applied an approach to calculate total emission reductions for all devices operational on each day of the entire monitoring period separately and then summing up the values to obtain emission reductions for the entire monitoring period. Under this approach, first baseline emissions are calculated for a single day in line with calculation method described in section E.3.6.1. After accounting for project emissions PE_{y,i,j} (which are considered as 'zero' for reasons described in section E.3.6.2) and percentage of operating project lamps OF_{y,i,j} (considered 100% for first year of crediting), the resulting emissions reductions are multiplied with number of solar lamps operational on each day of monitoring period. The calculation approach was reviewed by the verification team and found to be appropriate.

This approach also ensures that total emission reductions on any day of the monitoring period can be tracked and it could be ensured that at no point during the monitoring period SSC category Type-III technology threshold of 60,000 tCO₂e emission reductions is breached.

Cross-Check approach- To ascertain the accuracy of emission reduction calculations, a cross-check approach is also applied in ER sheet in which emission reduction is calculated for each SLS individually. Under this approach, baseline emissions are calculated for each lamp for the number of days that it was crediting throughout the monitoring period. A summed-up value is derived from individual calculation and matched with the calculation from first approach.

It is to be noted that in case of CPA 10341-P1-0002-CP1, the cross check approach is resulting in a higher value of emission reductions. It has been attributed to the fact that the first approach has accounted for capping of number of solar lamps distributed at 650,000 in line with CPA-DD, whereas the cross-check approach calculates emission reductions from the entire database of distributed

	<p>solar lamps. The lower value of the two (resulting from capping of solar lamp numbers) is considered as emission reductions from this CPA, which is found appropriate by the verification team.</p> <p>Both the approaches as explained above were found to be comprehensive and in compliance with requirements of registered design documentation and applied methodology.</p>
Findings	No findings were raised.
Conclusion	<p>The verification team confirms that</p> <ol style="list-style-type: none"> The complete data was available and is duly reported; As indicated above, the description with regard to cross-check of reported data is included under respective parameter; Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed; Appropriate emission factors, IPCC default factors and other reference values were correctly applied. There is no pro-rate approach (CDM VVS-PoA Version 02 /1/) applied in the current monitoring period as entire monitoring period falls into a period that is after the end of first commitment period of Kyoto Protocol. <p>The total number of ERs achieved during the current monitoring period are 18,006 tCO_{2e}.</p>

Title and UNFCCC reference number of the CPA	Baseline emissions or baseline net GHG removals by sinks (tCO _{2e})	Project emissions or actual net GHG removals by sinks (tCO _{2e})	Leakage (tCO _{2e})	GHG emission reductions or net GHG removals by sinks (tCO _{2e})		
				Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa – Solar Lamps & Efficient cook stoves – 10341 – CPA-0002 and 10341-P1-0002-CP1	9,228	0	0	0	9,228	9,228
MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa – Solar Lamps & Efficient cook stoves – 10341 – CPA-0003 and 10341-P1-0003-CP1	8,778	0	0	0	8,778	8,778
Total	18,006	0	0	0	18,006	18,006

E.3.6.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA

Means of verification	As verified and evident from the final Monitoring Report /12/ and corresponding ER
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	<p>calculations sheets /14/, the actual emission reductions achieved by the CPA 10341-P1-0002-CP1 are higher than estimated quantity in the approved CPA-DD, whereas for CPA 10341-P1-0003-CP1, the actual value is lower than the estimated amount. The quantitative details of actual values of achieved ERs for the CPA and value estimated in the specific CPA DDs/9/ is presented in the table below.</p> <table><tr><th>Estimated ERs (comparable period) (tCO₂e)</th><th>Estimated ERs (comparable period) (tCO₂e)</th><th>Actual ERs in MR (tCO₂e)</th></tr><tr><td>10341-P1-0002-CP1</td><td>7,902</td><td>9,228</td></tr><tr><td>10341-P1-0003-CP1</td><td>9,339</td><td>8,778</td></tr></table> <p>The higher estimated ERs for CPA 10341-P1-0002-CP1 have been attributed to, as discussed elaborately in section E.3.1 of this report, higher number of actual distributions (which are 698,809 but capped at 650,000) than anticipated at the time of CPA inclusion for year 1 of crediting (550,000). It has been cross-checked by verification team and is found a reasonable and acceptable justification.</p> <p>The verification team found that the actual emission reduction calculations of the CPAs were within the description of the specific CPA-DDs and therefore, acceptable.</p>	Estimated ERs (comparable period) (tCO ₂ e)	Estimated ERs (comparable period) (tCO ₂ e)	Actual ERs in MR (tCO ₂ e)	10341-P1-0002-CP1	7,902	9,228	10341-P1-0003-CP1	9,339	8,778
Estimated ERs (comparable period) (tCO ₂ e)	Estimated ERs (comparable period) (tCO ₂ e)	Actual ERs in MR (tCO ₂ e)								
10341-P1-0002-CP1	7,902	9,228								
10341-P1-0003-CP1	9,339	8,778								
Findings	No findings were raised.									
Conclusion	The actual emission reductions achieved for the CPA included are lower than the estimated quantity of ERs in the CPA DD for CPA 10341-P1-0003-CP1 and higher for CPA 10341-P1-0002-CP1. However, the small-scale threshold is maintained for both CPAs. Accordingly, it was accepted by the verification team.									

Title and UNFCCC reference number of the CPA	Actual values achieved by the CPAs during this monitoring period	Value estimated in ex ante calculation in the included CPA-DD(s)
10341-P1-0002-CP1	9,228	7,902
10341-P1-0003-CP1	8,778	9,339
Total	18,006	17,241

E.3.6.6. Remarks on difference from estimated value in included CPA

Means of verification	<p>The amount of actual emission reductions are higher than the actual emission reductions for CPA 10341-P1-0002-CP1 because of higher number of CEPs distributed than anticipated in the CPA-DD at the time of inclusion.</p> <p>In case of CPA 10341-P1-0003-CP1, the number of distributed SLS are within the maximum estimated operational units in the CPA-DD. For CPA 10341-P1-0002 CP1, the number of estimated units to be distributed were 550,000 for year 1 of crediting and 650,000 for any year of crediting (table A.1.2 of CPA-DD/9/). However, it is noted that:</p> <ol style="list-style-type: none"> Although 550,000 is the estimated number of units as per CPA-DD for the first year of crediting, footnote 2 of CPA-DD/9/ clarifies that actual sales volume might be different than those mentioned depending upon demand of the solar lamps. This is considered acceptable, until maximum estimated amount (650,000) of lamps is not exceeded and SSC-threshold for the technology is not breached. On any day of the monitoring period, if the total number of operational lamps are higher than maximum estimated quantity i.e., 650,000, the additional solar lamps are not considered for emission reduction calculations. The number is capped at 650,000. The small-scale threshold for type III technologies is not breached during implementation of this CPA. <p>Therefore, the implementation of both CPAs is found in line with the CPA-DD/9/, PoA-DD/4/ and applied methodology/6/ and other small scale technology requirements.</p>
Findings	CAR#03 raised and resolved.
Conclusion	The calculation of emission reduction was found to be appropriate and inline to the methodological requirements. The difference from estimated value was found acceptable in accordance with the CPA-DD footnote 2.

E.3.7. Assessment of reported sustainable development co-benefits

Means of verification	The CME has not requested DOE to verify sustainable development co-benefits.
Findings	None
Conclusion	Not applicable

E.3.8. Global stakeholder consultation

Means of verification	Not applicable
Findings	No findings
Conclusion	Not applicable

SECTION F. Internal quality control

A draft verification report prepared by verification team is reviewed by an independent technical review team (one or more members) to confirm whether all the internal procedures established and implemented by ESPL were duly complied with and such opinion/conclusion were reached in an objective manner that complies with the applicable CDM rules/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 findings may be opened, which needs to be satisfactorily resolved before the request for issuance is submitted to UNFCCC. 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 by the Managing Director on behalf of Earthood Services Private Limited.

SECTION G. Verification opinion

Earthood Services Private Limited (ESPL), contracted by MicroEnergy Credits Corporation Private Limited (the CME for the PoA), has performed the independent verification of the emission reductions for the registered CDM PoA 10341 "MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa" in Kenya and Uganda for the second monitoring period 26/03/2020 to 31/12/2020 (both days included) as reported in the Monitoring Report (public) Version 2 /11/ dated 10/06/2021. The present verification is applicable to 2nd monitoring period. The CME is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

ESPL confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. This verification report has been prepared using the latest available template specified by UNFCCC and complies with the instructions to follow of CDM VVS-PoA Version 02/1/.

The verification activities were conducted in accordance with ESPL's CDM Quality Manual System as per the steps indicated under Section A of this report. The verification process has resulted in conclusion that the included CPAs conform to the revised accepted PoA-DD as well as comply with applicable CDM rules and regulations and in accordance with applied monitoring methodologies AMS-III.AR, version 5 /6/, AMS-II.G version 8 /7/, and AMS-III.AV, version 5 /8/.

As a result, it is confirmed that the emission reductions from the CDM PoA 10341 "MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa" are correctly reported in the Monitoring Report (final) Version 4 dated 08/08/2021 /12/ and corresponding ER sheet for the monitoring period 26/03/2020 to 31/12/2020 (including both days) /14/ amount as 18,006 tCO₂e. Therefore, this will be submitted as part of request for issuance as per CDM PCP Version 02 /3/.

SECTION H. Certification statement

The 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 reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the PoA for the monitoring period 26/03/2020 to 31/12/2020 are fairly stated in the Monitoring Report (final) Version 4 dated 08/08/2021.

CDM-PoA-VCR-FORM

ESPL, based on outcome of verification activities, certify in writing that, during the monitoring period 26/03/2020 to 31/12/2020 (including both days), the registered CDM PoA "MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa" and the included CDM CPAs (10341-P1-0002-CP1 and 10341-P1-0003-CP1) in the registered CDM PoA achieved the verified amount of 18,006 tCO₂e reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the CPA.

The verified amount of emission reductions is stated below for the CPA covered and as per commitment period:

CPAs (included in this request)	Emission Reductions (Amount) in this monitoring period (in tCO₂e)	
	Up to 31/12/2012 (1st commitment period)	01/01/2013 onwards
10341-P1-0002-CP1	-	9,228
10341-P1-0003-CP1	-	8,778
Total	-	18,006

Appendix 1. Abbreviations

Abbreviations	Full texts
AQL	Acceptable Quality Level
IR	Internal Resource
LED	Light Emitting Diode
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
CER	Certified Emission Reduction
CEP	Clean Energy Product
CL	Clarification Request
CME	Coordinating or Managing Entity
CPA	Component Project Activity
CP	Crediting period
DOE	Designated Operational Entity
DNA	Designated National Authority
EB	Executive Board
LFR	Lamp Failure Rate
ESPL	Earthhood Services Private Limited
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GOI	Government of India
ICS	Improved Cook Stove
IPCC	Intergovernmental Panel on Climate Change
MEC	MicroEnergy Credits Corp
MIS	Management Information System
PDD	Project Design Document
PO	Partner Organization
MP	Monitoring Period
SLS	Solar Lighting System
NA or N/A	Not Applicable
TA	Technical Area (with in Sectoral Scope)
TR	Technical Reviewer
VVS	Validation and Verification Standard
UNFCCC	United Nations Framework Convention on Climate Change
UQL	Unacceptable Quality Level
WPS	Water Purification System
CFL	Compact Fluorescent Lamp
CEO	Chief Executive Officer

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	2+ year

Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	YES (AMS-I.A., AMS-II.G., 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	Shreya Garg	Date	09/07/2020
Approved by	Ashok Gautam	Date	09/07/2020

Competence Statement			
Name	Rahi Sahni		
Education	M.Sc Environment Science and Technology, Bharati Vidyapeeth University, Pune		
Experience	6 months		
Field	Climate Change and Environment		
Approved Roles			
Team Leader	NO		
Validator	Yes		
Verifier	Yes		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	NO		
Reviewed by	Shreya Garg	Date	09/04/2020
Approved by	Anshika Gupta	Date	09/04/2020

Competence Statement			
Name	Virginia Njeri		
Country	Kenya		
Education	Diploma (Business Management)		
Experience	7 Years		
Field	Administration		
Approved Roles			
Team Leader	No		
Validator	No		
Verifier	No		
Methodology Expert	No		
Local expert	Kenya		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	No		

Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Kumar Gautam	Date	01/03/2018

Competence Statement			
Name	Sanjeev Kumar		
Country	India		
Education	B. Tech. (Chemical Engineering) M.Tech. (Energy Management)		
Experience	13.5 years +		
Field	Climate Change, Environment, Energy		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	YES (ACM0002, ACM0006, ACM0004, ACM0009, ACM0012, ACM0001, AMS I.D, AMS I.F, AMS I.C, AMS I.A, AMS II.C, AMS II.D, AMS II.E, AMS III.H, AMS III.AR, AM0009, AM0013, AM0025, AM0056, AM0028, AM0029, AM0008, AMS III.R, ACM0003)		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, 4.1, 13.1)		
Reviewed by	Shreya Garg	Date	16/12/2020
Approved by	Anshika Gupta	Date	16/12/2020

Competence Statement			
Name	Deepika Mahala		
Country	India		
Education	M. Sc. (Environmental Management), GGSIP University B.Sc. Hons. (Chemistry), Sri Venkateshwar College, DU		
Experience	5 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	ACM0002, AMS.I.D., AMS.I.A, AMS.III.AV, AMS.II.G		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2 & TA 3.1)		
Reviewed by	Shreya Garg	Date	15/04/2021
Approved by	Anshika Gupta	Date	15/04/2021

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	UNFCCC	CDM VVS for PoA	Version 2	Others
2.	UNFCCC	CDM PS for PoA	Version 2	Others
3.	UNFCCC	CDM PCP for PoA	Version 2	Others
4.	MEC	PoA-DD (Registered); PoA-DD (Revised)	Ver. 2.0, Dated 23/12/2016; & Ver. 6, Dated 18/02/2021	Others
5.	ESPL	PoA PRC Validation Report (PRC-10341-001) POA PRC Validation Report (PRC-10341-004)	Ver. 3.0, Dated 14/10/2019 Ver. 2.1, dated 09/04/2021	Others
6.	UNFCCC	AMS-III.AR “Substituting fossil fuel based lighting with LED/CFL lighting systems”	Version 5	Others
7.	UNFCCC	AMS-II.G “Energy efficiency measures in thermal applications of non-renewable biomass”	Version 8	Others
8.	UNFCCC	AMS III.AV. “Low greenhouse gas emitting water purification systems”	Version 05	Others
9.	MEC	CPA-DD for CPA 10341-P1-0002-CP1 CPA-DD for CPA 10341-P1-0003-CP1	Version 08, dated 25/02/2021 Version 06, dated 25/02/2021	Others
10.	ESPL	CPA PRC Validation Report (PRC-10341-006) CPA PRC Validation Report (PRC-10341-007)	Ver. 2.0, Dated 26/02/2021	Others
11.	MEC	Monitoring Report (Public)	Ver. 2, dated 10/06/2021	PP
12.	MEC	Monitoring Report (Final)	Ver. 4, Dated 08/08/2021	PP
13.	UNFCCC	CDM-PoA-MR-FORM	Ver. 4.0	Others
14.	MEC	ER Sheets corresponding to MR (Final) for both CPAs	-	PP
15.	UNFCCC	CDM EB: 110 th meeting	-	Others
16.	POs	Tracker Output Files	For MP2	PP
17.	POs	Training Records – PO installation Staff	-	PP
18.	MEC	Training Records – Carbon Operations manager	-	PP
19.	MEC	Agreements between CME & Partner Organisation	Various	PP
20.	MEC	Sample CTTs and Loan documents (screenshots) of end users	Various	PP
21.	MEC	Sample SLS delivery note	Various	PP
22.	Various	Technical Specifications of SLS (manufacturer specifications and third party test reports)	-	PP
23.	POs	PO booking records & delivery notes	-	PP
24.	-	Credit tracker screenshots	-	PP
25.	-	CEP photographs	-	PP
26.	UNFCCC	Standard: Sampling and surveys for CDM project activities and programme of activities	Version 09.0	Others
27.	UNFCCC	Guideline: Sampling and surveys for CDM project activities and programme of activities	Version 4.0	Others
28.	IPCC	IPCC Defaults	2006	Others
29.	UNFCCC	Glossary of CDM terms	Version 10.0	Others
30.	GOI	Travel restrictions and advisory: https://boi.gov.in/content/advisory-travel-and-visa-restrictions-related-covid-19-1	04/06/2021	Others
31.	MEC	ERPA – MEC Africa		PP
32.	India.com	https://www.india.com/business/international-flight-ban-india-extended-till-july-31-dqca-4778201/	-	Others

33.	Raosoft	Raosoft Webpage http://www.raosoft.com/samplesize.html	-	Others
34.	WHO	Kenya covid-19 status: https://covid19.who.int/region/afro/country/ke	Last accessed: 09/08/2021	Others
35.	WHO	India covid-19 status: https://www.who.int/india/emergencies/coronavirus-disease-(covid-19)/india-situation-report	Last accessed: 09/08/2021	Others
36.	MEC	Internal Audit Report	December, 2020	CME
37.	Various	Accreditation documents and certificates for third parties (responsible for SLS technical specs)	Various	CME

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

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

FAR ID	00	Section no.	Date : DD/MM/YYYY
Description of FAR			
Project participant response			Date : DD/MM/YYYY
Documentation provided by project participant			
DOE assessment			Date: DD/MM/YYYY

There is no FAR from PoA validation, CPA validation or previous MP applicable for this issuance.

Table 2. CL from this verification

CL ID	01	Section no.	E.3.1	Date : 06/07/2021
Description of CL				
In Section C.1 of the PoA MR, within the heading 'Technology models implemented under the CPA', sub-heading 'Solar Lighting Systems', 27 SLS models have been mentioned to be distributed under both CPAs (CPA 0002 and 0003)				
a. According to ER sheet for CPA 10341-P1-0003-CP1, there are some other SLS models also distributed under the CPA, which have not been listed in the MR. b. Since many of the SLS models listed as distributed under the CPAs were not reviewed as part of CPA inclusion and were not included in the registered CPA-DD, CME is requested to demonstrate (with supporting documents) eligibility of these models for being distributed under the CPAs.				
Project participant response				Date : 26/07/2021
a) All the SLS models have now been included in the revised monitoring report. A total of 44 models are listed in the revised monitoring report. b) All the technical specifications each of the new lamp model are now listed in the revised monitoring reports. As per methodology requirements, each of these lamps is charged by a renewable energy system included as part of the project lamp, which is a photovoltaic system. Additionally, all the lamps have been certified by the manufacturer to operate for at least 10,000 hours. All the lamps also carry warranty of at least more than 1 year.				
Documentation provided by project participant				
Supporting documents for technical specification of each of the lamps.				
DOE assessment				Date: 29/07/2021
a. The revised MR is reviewed and it is confirmed that the information provided regarding models of solar lighting systems is consistent with ER sheet. The list of models is further cross-checked with credit tracker platform and the information is found in line with the project database. b. The technical specifications of all distributed models provided by CME have been studied by the verification team and it is concluded that technical specifications of all distributed SLS models meet the minimum criteria set by methodology, PoA-DD and CPA-DD. The specifications were further cross-checked from third party test-reports for these models and were found in line with applied methodology AMS.III.AR.				

CL#01 is closed.

CL ID	02	Section no.	E.3.3	Date	: 06/07/2021
Description of CL					
In ER calculation sheet, the data provided shows that the different number of solar lamps have been distributed in different households, with the number going up to 15 lamps per household in some cases. In line with applied methodology para 8(b), CME is requested to clarify the mechanism in place to discourage hoarding of lamps and demonstrate with supporting documents how it is ensured that application of this mechanism is effective and in line with methodology requirements.					
Project participant response					Date : 26/07/2021
<p><i>The project is largely targeting the households as end users and more than 95% of the products are carrying upto 5 lamps. There are very few products with 9-15 lamps, and these lamps are being distributed in non-residential/community applications. The CME has not distributed any devices free of cost, and all the devices are being fully paid by the end user. Multiple lamps options/models are made available to users at the time of purchase, and users are purchasing these lamps based on their Household/community requirements. During dissemination of the products consumers are made aware about the usage of the products and extent of its utility. They are offered the product as per their current household size and requirements. In addition, they are also made aware about the negative impacts of fossil fuel usage and savings potential once they use the solar lamp.</i></p> <p><i>In addition, at the time of regular internal audits, CME is checking the appropriate implementation of all the bulbs in the households.</i></p>					
Documentation provided by project participant					
-					
DOE assessment					Date: 30/07/2021
<p>During the remote surveys, end-users with several number of solar lamps installed were questioned about their usage, and it was found that end-users with even up to 15 lamps bought were using those lamps and hoarding was not found to be a practice in both CPAs. It was further noted that the solar lighting systems are not distributed for free of cost, and therefore, it is reasonable to assume that the end-users will only buy the lamps as per usage, especially since awareness spreading mechanisms are in place to ensure the same.</p> <p>CL#02 is closed.</p>					

Table 3. CAR from this verification

CAR ID	01	Section no.	E.3.2	Date	: 06/07/2021
Description of CAR					
In Section C.3 of the MR, all permanent changes made to the monitoring plan are mentioned as "N/A", whereas the PRC webpage to the PoA shows that a post-registration changes have been made to the CPA.					
Project participant response					Date : 26/07/2021
<i>Section C.3 of the MR has been revised in line with approved PRC.</i>					
Documentation provided by project participant					
<i>Revised monitoring report</i>					
DOE assessment					Date: 29/07/2021
The information provided in revised MR section C.3 is found to be reflecting accurate information with all post-registration changes and their approval information provided. The details were cross checked with relevant UNFCCC webpages and information was found consistent. However, the post-registration changes are not categorized on the basis of changes that are applicable from this MP and those changes that were applicable from previous MPs. CME is requested to fill MR sections in line with guidance provided in CDM-PoA-MR-FORM. open					
Project participant response					Date : 05/08/2021
<i>Section C.3 has been revised and changes for current and previous MP are separately mentioned in the revised Monitoring report.</i>					
<i>Revised monitoring report</i>					
DOE assessment					Date: 06/08/2021
The revisions are found in line with the relevant form guidance and PS for PoA ver.2.0. All mentioned changes are in line with respective CPA-DDs.					
CAR#01 is closed.					

CAR ID	02	Section no.	E.3.4.2	Date	: 06/07/2020
Description of CAR					

1. According to parameter table of SLS monitored parameter $Of_{i,j}$ in MR, "Since the option-1 has been chosen, as per methodology, project lamps are assumed to operate for two years, and this value of 100% would be used as default for two years for each lamp". However, according to CPA-DD for CPA 0003, option 2 has been chosen from para 18 of applied methodology. Therefore, CME is requested to justify how this parameter has been monitored in line with applied meth for CPA 0003.
2. According to information provided in parameter table for SLS monitored parameter Ni,j , "On dates when the lamps under operation exceed 650,000 at any point in time during the monitoring period, the CERs have been claimed only for 650,000 lamps". However, it is evident from the ER calculation sheet that ER have been calculated and claimed for all lamps distributed, even when they are exceeding the maximum number of lamps estimated in CPA-DD. CME is requested to clarify how this parameter has been monitored in line with CPA-DD and demonstrate how both CPAs are within the SSC threshold limit for type III technologies.

Project participant response	Date : 26/07/2021
<ol style="list-style-type: none"> 1. As per para 30 of the AMS IIIAR version 5, For project lamps that will claim emission reductions for up to seven years, ex post monitoring surveys to determine percentage of project lamps distributed to end users that are operating and in service shall be conducted during the third year of the crediting period. While the percentage of project lamps that are operating and in service can be assumed to equal 100 per cent in year 1, 2, and 3. Hence, for CPA-0003, a value of 100% has been used since this is 1st year of the crediting period. 2. ER sheet has been revised now, and the lamps have been capped to 650,000, on the days when number of lamps is exceeding 650,000 	
Documentation provided by project participant	
Revised ER sheet and MR	
DOE assessment	Date: 29/07/2021
<ol style="list-style-type: none"> 1. The revised ER sheets and MR were reviewed and the erroneous reporting is found to be corrected. Since the installed SLS devices for CPA 10341-P1-0003-CP1 will be claiming ERs in line with paragraph 18(b) of applied methodology AMS.III.AR, monitoring will be conducted in third year of crediting period. Therefore, the approach is found appropriate. 2. The revised approach demonstrated in the MR and applied in the ER sheet ensures that on any day in the crediting period the maximum number of SLS crediting CERs does not exceed 650,000, which is the maximum amount estimated to be distributed in each CPA during any crediting year. This approach is found appropriate. 	
CAR#02 is closed.	

CAR ID	03	Section no.	E.3.6.6	Date : 29/07/2021
Description of CAR				
The achieved emission reductions for CPA 10341-P1-0002-CP1 are higher than the estimated value for comparable crediting period, however, no justification for this is provided in section F.6 of MR. CME is requested to justify acceptability of the achieved ERs.				
Project participant response				Date : 05/08/2021
Justification has now been added to the MR. This is due to higher distribution of devices than what was earlier envisaged in year-1.				
Documentation provided by project participant				
Revised MR				
DOE assessment				Date : 06/08/2021
It is noted that a total of 650,000 SLS have been accounted for in calculation of the achieved ERs, whereas the total envisaged SLS in first crediting year of CPA 10341-P1-0002-CP1 were 550,000. Since the small-scale threshold of the CPA is not breached, and number of SLSs accounted for CER calculations are not more than the limit set in CPA-DD, therefore, the calculations have been found acceptable.				
CAR#03 is closed				

Table 4. FARs from this verification

FAR ID	xx	Section No.		Date: DD/MM/YYYY
Description of FAR				
CME response				Date: DD/MM/YYYY
Documentation provided by the CME				

DOE assessment	Date: DD/MM/YYYY
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No FAR raised from this verification.

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
04.0	6 April 2021	Revision to: <ul style="list-style-type: none"> Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> Ensure consistency with version 02.0 of the “CDM validation and verification standard for programmes of activities” (CDM-EB93-A08-STAN); Make structural and editorial improvements.
02.0	29 December 2017	Revision to align with the requirements of the “CDM validation and verification standard for programme of activities” (version 01.0).
01.0	5 June 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: programme of activities, verifying and certifying		