Verification and certification report form for CDM programme of activities

(version 01.0)

Complete this form in accordance with the "Attachment. Instructions for filling out the verification and certification report form for CDM programme of activities" at the end of this form.

VERIFICATION AND CERTIFICATION REPORT		
Title of the programme of activities (PoA)	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) - Smart Use of Energy Mexico	
UNFCCC reference number of the PoA	2535	
Version number(s) of the PoA-DD(s) applicable to this report	Version 8.0, 11 July 2014	
Version number of the verification and certification report	Version 02	
Completion date of the verification and certification report	11 October 2016	
Monitoring period number	02	
Duration of this monitoring period	01 December 2010 to 31 March 2016	
Number and version number of the monitoring report to which this report applies	Monitoring report 01, Version 02, 11 September 2016	
Coordinating/managing entity (CME)	Cool NRG International Pty Ltd.	
Host Party(ies)	Host Party(ies) of the PoA	Is this a host Party to a CPA covered in this report?(yes/no)
	Mexico	Yes
Sectoral scope(s)	(3) Energy Demand	
Selected methodology(ies)	AMS-II.C "Demand-side energy efficiency activities for specific technologies" Version 09.0	
Selected standardized baseline(s)	N/A	
Total estimated GHG emission reductions or net GHG removals for this monitoring period in the included CPA(s) covered in this report	1,895,407 (Value estimated in ex ante calculation in the included CPA-DD(s))	
Total certified GHG emission reductions or net GHG removals for this monitoring period for the included CPA(s) covered in this report	223,989 tonnes CO_2e	

Name of DOE	ERM Certification and Verification Services
Name, position and signature of the approver of the verification and certification report	Melanie Eddis Partner 11 October 2016

SECTION A. Executive summary

>> ERM Certification and Verification Services (ERM CVS) was commissioned by Cool NRG International Pty Ltd. to verify and certify the emissions reductions reported for the period 01 December 2010 to 31 March 2016 as set out in the monitoring report of the CDM PoA 'CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) - Smart Use of Energy Mexico', UNFCCC Reference Number 2535.

Overview of PoA

The PoA involves the distribution of energy efficient light bulbs to households across Mexico. Each of the 25 small-scale CDM programme activities included in the PoA is implemented across Mexico. The PoA and CPAs are managed by Cool NRG International Pty Ltd., in collaboration with key operational partner organisations.

This report covers verification activities involving 24 CPAs: 2535-0002 to 2535-0025. The CPA 2535-0002 to CPA 2535-0025 involve the distribution of free energy efficient light bulbs (Compact Fluorescent Lamps or "CFLs") which were made available to households across Mexico. 4 CFLs (to be referred to as "Project CFLs" in this report) were made available for exchange for an equivalent number of incandescent bulbs (ILBs) for each household at distribution outlets within the project area covered by the CPAs. Since CFLs require up to 80% less energy than incandescent bulbs to produce an equivalent lumen output and last up to 10 times longer than standard incandescent bulbs, replacing incandescent bulbs with CFLs result in reductions in electricity use for lighting, thereby reducing energy demand, cutting greenhouse gas emissions associated with the production of electricity and saving households money on their electricity bills.

ERM CVS is responsible to provide an independent verification conclusion on the reported greenhouse gas (GHG) emission reductions for the PoA during the relevant monitoring period. The verification activities included desk review, site visit, close out of open issues, preparation of report and technical review. This report sets out the methodology and conclusions of the verification process and the ERM CVS Certification Statement. ERM CVS assessed and verified whether the implementation of the project activity and the steps taken to report emission reductions comply with the CDM criteria and relevant guidance provided by the CMP and the CDM Executive Board.

As set out in the CDM modalities and procedures, verification is the periodic independent review and ex post determination by the Designated Operational Entity (DOE) of the monitored reductions in anthropogenic emissions by sources of greenhouse gases (GHGs) that have occurred as a result of a registered CDM PoA during the verification period. Certification is the written assurance by the DOE that, during a specified time period, the PoA achieved the reductions in anthropogenic emissions by sources of GHGs as verified. The objective of the verification is to establish whether sufficient evidence exists to confirm, to reasonable assurance:

- Whether the PoA and its CPAs have been implemented and operated as per the PoA-DD and CPA-DDs /03/ and that all physical features (technology, project equipment, and monitoring and metering equipment) of the PoA and CPAs are in place.
- Whether the applied monitoring plan /04/ is in compliance with the relevant approved CDM monitoring methodology
- Whether the monitoring report /01/ and other supporting documents provided are complete and verifiable and in accordance with the monitoring plan and applicable CDM requirements.
- Whether the emission reductions as set out in the monitoring report /1/ have been

measured, calculated and reported in accordance with the requirements of the monitoring plan /04/.

- Whether the reported data meet the key principles of data quality and are complete, reliable, consistent, accurate, valid, transparent and conservative.

ERM CVS also assessed whether the monitoring report and other supporting documents provided are complete in accordance with the latest applicable UNFCCC checklists and guidance for documentation required to be submitted with the Request for Issuance.

Scope and basis of verification work:

The verification is an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE. Based on the key project information, the verification addresses the implementation and operation of the PoA and CPAs as set out in the PoA-DD and CPA-DDs /03/, and the information and reported emissions reductions set out in the monitoring report prepared by the Coordinating and Managing Entity (CME) for this monitoring period.

Only verification activities undertaken after the publication of the monitoring report on the UNFCCC CDM website are used as a basis for ERM CVS to conclude the verification and submit a request for issuance of CERs to the CDM EB.

The verification considers both quantitative and qualitative information on emission reductions. The monitoring report is assessed, using a rules based approach, against the principles of accuracy, relevance, credibility, reliability, completeness, consistency, and transparency. Conservativeness is applied throughout the process to ensure that emission reductions are not overstated.

ERM CVS conducts all its work under strict rules to safeguard impartiality and ensure the independence of the verification team. The verification does not provide any consulting or recommendations for the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

Conclusions:

In conclusion, based on the verification activities undertaken, ERM CVS concludes that the PoA and CPAs are implemented and operated as described in the registered PoA-DD and CPA-DDs. The GHG emissions reductions set out in the monitoring report were found to be appropriately measured and calculated in accordance with the applied monitoring methodology and the monitoring plan. ERM CVS concluded that the reported emission reductions for the monitoring period are fairly stated. Please see section G for the verification opinion and certification statement.

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 review	On-site inspection	Interview(s)	Verification findings

1.	Lead Verifier	IR	Seelam	Sushmita	ERM CVS, London	Yes	Yes	Yes	Yes
2.	Verifier and Client Account Manager	IR	Pumputyte	Neringa	ERM CVS, London	Yes	No	No	Yes

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	Avis	Jonathan	ERM CVS, London
2.	Approver	IR	Eddis	Melanie	ERM CVS, London

SECTION C. Means of verification

C.1. Desk review

>>A detailed desk review was undertaken prior to the site visit. This included the PDD /3/, the monitoring plan /4/, the validation report /5/, the applied monitoring methodology, previous verifications reports if applicable /6/, relevant external data and reports, on-site documents, and relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board.
The desk review included

- A review of the data and information presented to verify completeness and consistency in accordance with relevant CDM requirements
- A review of the monitoring plan and monitoring methodology, including applicable tools, paying particular attention to the frequency of measurements, quality of metering equipment (including calibration requirements) and the quality assurance and quality control (QA/QC) procedures
- An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of emission reductions.
- Review of the monitoring report to ensure it is completed as per the standardised format

C.2. On-site inspection

Duration of on-site inspection: 01/08/2016 to 06/08/2016				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	An assessment of implementation and operation as per the registered/approved PoA-DD and CPA-DDs /03/ (including site walk through to confirm physical existence and operation of project components);	A site visit to the PoA (including site visits to Mexico – specifically Mexico City, Queretaro and Puebla areas) was undertaken to assess implementation and operation of the PoA and to review evidence, and interview key personnel to confirm evidence associated with the data generation, aggregation, calculation and reporting of the monitoring parameters.	01/08/2016 to 06/08/2016	Sushmita Seelam
2.	Review of information flows for generating, aggregating and reporting the monitoring parameters;			
3.	Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan /04/. A list of all interviewees is included in Annex 2.			
4.	A cross-check between information provided in the monitoring report /01/ and data from other sources such as log books, inventories, purchase records or similar data sources to establish the existence of a clear audit trail and records that validate or invalidate the stated data;			
5.	A check of monitoring equipment including calibration performance and observations of the monitoring practices against the requirements of the PoA-DD and CPA-DDs /03/ and the selected methodology(ies) and corresponding tool(s), where applicable;			
6.	A review of calculations and assumptions made in determining the GHG data and emission reductions;			
7.	Identification of quality control procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters			

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Tierney	Chris	Cool NRG International Pty Ltd.	01/08/2016-06/08/2016	PoA design, CPA design and implementation, monitoring organisation management, CFL distribution and disposal of ILBs, Monitoring Report, emission reduction calculations, monitoring surveys, sampling and reliability, etc	Sushmita Seelam
2.	Gallart	Alan	Cool NRG International Pty Ltd.	01/08/2016-06/08/2016	PoA and CPA implementation, CFL distribution, monitoring organisation management	
3	Ramirez	Patricia	Strategy Success (Head)	05/08/2016	Monitoring organisation, Survey head office management and day to day support, Survey results	
4	Trevedan	Mariana	Strategy Success (Surveyor)	05/08/2016	Survey methodology, techniques, training, survey results and feedback	
5	Guadarrama	Gabriela	Strategy Success (Surveyor Training)	05/08/2016	Surveyor Training, Training topics, Survey techniques	
6	Medina	Omar	Strategy Success (Surveyor)	06/08/2016	Survey methodology, techniques, training, survey results and feedback	
In addition to the persons listed here, a number of households were interviewed either face-to-face or via telephone calls about their use of the project CFLs. Please see section C.4 below for information on the households visited during the site visit.						

C.4. Sampling approach

>>Acceptance sampling was selected for this verification, in line with the guidance in the 'Guideline: Sampling and surveys for CDM project activities and programmes of activities', Version 04.0. Acceptance sampling is included as one of the best practice examples as an appendix to the sampling guidelines. Its use during verifications is not mandatory and other sampling approaches may be adopted by the DOE during subsequent verifications. Acceptance sampling was deemed appropriate for this verification based on ERM CVS's professional judgement because of the objective approach it would provide to the verification of self-reported data gathered through surveys, and the fact that the verification team planned to visit sufficient households during the verification site visit to make acceptance sampling possible.

The CME's survey sample was selected by means of simple random sampling (for Project Cross Check Sample Group (PCCG)). The sampling frame was the entire database of CFLs distributed to end users under each CPA. To validate/verify the CME's sample the DOE needs to take, and observe, a random sample of households from the PPs sample.

ERM CVS determined its sample size for acceptance sampling by evaluating the following, using our own professional judgement and guidance in the Standard 'Sampling and surveys for CDM project activities and programme of activities' version 05.0:

- The proportion of discrepancies between the CME's data and DOE's data that can be considered acceptable in their sample. This is referred to as the AQL (Acceptable Quality Level): 1.0% was considered;
- The proportion of discrepancies between the CME's data and DOE's data that would be considered unacceptable in their sample. This is the UQL (Unacceptable Quality Level): 10% was considered;
- The producer risk: 5% was considered;
- The consumer risk: 10% was considered

The values were selected based on ERM CVS's professional judgement and sectoral and local knowledge of the project technology and project context. In determining the AQL and UQL, the DOE considered the following aspects:

- The volume of annual emission reductions achieved by the PoA is less than 100,000 t CO_2e

The DOE' sample size n was therefore determined to be 52 across CPAs (CPAs 02-25 for this verification), and the acceptance number c is 2.

The decision about whether or not the PPs data are valid depends on the number of discrepancies there are between the DOE's data and the CME's data. If the number of discrepant records is equal to or less than c then the PP's set of records is accepted. If the number of discrepant records is higher than c then the PP's set of records is not accepted. i.e. in this case, up to 2 records could have a discrepancy in order for the PP's set of records to be accepted.

The CPAs are classified into Blocks' based on the start and end date of the distributions of CFLs for each CPA (as it is expected that CFLs installed in the same period will have similar operating life, CPAs are grouped according to distribution date). Each Block represents a 3 month period within which the distributions occurred, therefore a few CPAs (CPA 0006, 0016 and 0024) fall under more than one Block as follows:

CPA No.	CFL Distribution Start Date	CFL Distribution End Date	Block
2535-0002	04/07/2011	15/08/2011	1
2535-0003	15/08/2011	29/08/2011	1
2535-0004	29/08/2011	12/09/2011	1
2535-0005	12/09/2011	26/09/2011	1

2535-0006	26/09/2011	07/10/2011	1 and 2
2535-0007	07/10/2011	17/10/2011	2
2535-0008	17/10/2011	25/10/2011	2
2535-0009	25/10/2011	02/11/2011	2
2535-0010	02/11/2011	10/11/2011	2
2535-0011	10/11/2011	17/11/2011	2
2535-0012	17/11/2011	25/11/2011	2
2535-0013	25/11/2011	03/12/2011	2
2535-0014	03/12/2011	14/12/2011	2
2535-0015	14/12/2011	27/12/2011	2
2535-0016	27/12/2011	10/01/2012	2 and 3
2535-0017	10/01/2012	22/01/2012	3
2535-0018	22/01/2012	31/01/2012	3
2535-0019	31/01/2012	09/02/2012	3
2535-0020	09/02/2012	20/02/2012	3
2535-0021	20/02/2012	29/02/2012	3
2535-0022	29/02/2012	11/03/2012	3
2535-0023	11/03/2012	26/03/2012	3
2535-0024	26/03/2012	25/05/2012	3 and 4
2535-0025	25/05/2012	14/06/2012	4

According to the sampling plan for the PCCG, the CME was required to survey at least 97 households per Block, with an overall of 385 surveys across all CPAs.

The CME conducted 416 monitoring surveys across all CPAs (with a minimum of 97 under each Block of CPAs). Of these, 270 households reported zero project CFLs (nearly 65%). Since the DOE sample size was quite large and households are dispersed across a wide geographical area (all of Mexico), a decision was taken by ERM CVS for the verification team to conduct interviews:

- Face-to-face only for those households in the DOE's sample that in the PP's survey were found to have at least 1 lamp operational;
- A combination of face-to-face and telephone interviews for those households in the DOE's sample that in the PP's survey were found to have zero operational lamps via. telephone calls (only to zero bulb households).

Furthermore, since all CPAs could not be visited in the 6 day duration of the site visit, ERM CVS conducted surveys covering households from each Block of CPAs. As noted above, CPAs are classified into Blocks' based on the start and end date of the distributions of CFLs for each CPA - as it can be expected that CFLs installed in the same period will have similar operating life. During the site visit, ERM CVS visited areas of Distrito Federal, Estado de México, Querétaro and Puebla states of Mexico, which covered the distributions of project CFLs under all 4 Blocks of CPAs.

Using this approach, ERM CVS conducted 35 face-to-face interviews and 17 telephone interviews – covering overall 52 surveys across the 4 Blocks of CPAs thereby meeting the sample size requirement of 52 (n). Please refer to Appendix 5 for details on the household interview list.

C.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 verification			

Specific-case CPA(s) 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	3		
Post-registration changes			
• Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline			
• Corrections			
• Inclusion of a monitoring plan in a registered PoA-DD (including its generic CPA-DD(s))			
• Permanent changes to the monitoring plan as described in the registered PoA-DD, applied methodology, or applied standardized baseline			
• Changes to the programme design of the registered PoA-DD (including corresponding changes to project design of the generic CPA-DD(s)) and updates to the eligibility criteria for inclusion of specific-case CPAs in the PoA			
• Types of changes specific to afforestation and reforestation activities			
Component project activity(ies)			
Compliance of the CPA implementation with the included CPA design document	2		
Post-registration changes			
• Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline			
• Corrections			
• Changes to the start date of the crediting period			
• Inclusion of a monitoring plan to an included CPA-DD			
• Permanent changes to the monitoring plan as described in the included CPA-DD, applied methodology, or applied standardized baseline			
• Changes to the programme design of the included CPA-DD			
• Types of changes specific to afforestation and reforestation component project activities			
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline			
Compliance of monitoring activities with the registered monitoring plan			
• Data and parameters fixed ex ante or at renewal of crediting period	1		
• Data and parameters monitored			
• Implementation of sampling plan	1		2
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 specific-case CPA			
• Remarks on difference from estimated value in registered PDD			
Monitored Parameters (Appendix 6)	1	1	
Total	8	1	2

SECTION D. Internal quality control

>> The verification activities and content of the report are subject to a review by an independent technical reviewer. The role of the Technical Reviewer is to provide oversight that all procedures have been followed by the verification team and all conclusions justified and supported by evidence. The Technical Reviewer will either accept or reject the recommendations made by the verification team.

SECTION E. Verification opinion

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Based on the verification activities undertaken, ERM CVS concludes that the project activity is implemented and operated as described in the registered PoA Design Document and included CPA-DDs.

The GHG emissions reductions set out in the monitoring report 01 dated 11 September 2016 were found to be appropriately measured and calculated in accordance with the applied monitoring methodology AMS-II.C "Demand-side energy efficiency activities for specific technologies" Version 09.0 and the monitoring plan set out in the PoA Design Document, Version 8.0, 11 July 2014 and the following included CPA-DDs:

Reference number of the specific-case CPAs	Title of the CPAs	Version Number	Date
2535-0002	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-02	09	11 July 2014
2535-0003	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-03	09	11 July 2014
2535-0004	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-04	09	11 July 2014
2535-0005	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-05	09	11 July 2014
2535-0006	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-06	09	11 July 2014
2535-0007	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-07	09	11 July 2014
2535-0008	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-08	09	11 July 2014
2535-0009	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-09	09	11 July 2014
2535-0010	CUIDEMOS Mexico (Campana De Uso Intelegente	09	11 July 2014

	De Energia Mexico) – CPA-10		
2535-0011	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-11	09	11 July 2014
2535-0012	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-12	09	11 July 2014
2535-0013	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-13	09	11 July 2014
2535-0014	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-14	09	11 July 2014
2535-0015	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-15	09	11 July 2014
2535-0016	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-16	09	11 July 2014
2535-0017	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-17	09	11 July 2014
2535-0018	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-18	09	11 July 2014
2535-0019	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-19	09	11 July 2014
2535-0020	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-20	09	11 July 2014
2535-0021	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-21	09	11 July 2014
2535-0022	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-22	09	11 July 2014
2535-0023	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-23	09	11 July 2014
2535-0024	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-24	09	11 July 2014
2535-0025	CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – CPA-25	09	11 July 2014

Based on the verification activities undertaken, ERM CVS concludes that the reported emission reductions from CPAs 2535-0002 to 2535-0025 for the monitoring period 01 December 2010 to 31 March 2016 are fairly stated.

SECTION F. Certification statement

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Basis of verification	ERM CVS based its verification work on: ▪ the approved methodology applied in the PoA design document (PoA-DD) ▪ the registered PoA-DD and included CPA-DDs

	▪ the CDM Validation and Verification Standard (VVS) version 09.0 ▪ the CDM Project Standard (PS) and Project Cycle Procedure (PCP) ▪ 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 ▪ 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
Responsibilities of ERM CVS	ERM CVS is responsible to provide an independent verification conclusion on the reported greenhouse gas (GHG) emission reductions for the PoA during the relevant monitoring period. The verification activities included desk review, site visit, close out of open issues, preparation of report and technical review.
Responsibilities of Project Participants	The Project Participants (PPs) are responsible for the preparation of the information and GHG emissions data and the reported GHG emissions reductions of the PoA on the basis set out within the applicable monitoring plan.
ERM CVS Opinion	See section E above.
Total GHG emission reductions certified	The total GHG emission reductions certified for this monitoring period are: 223,989 tCO_2 equivalent

Approved by	**Signature**
Name: **Melanie Eddis**	[signed]
Date: 11 October 2016	

SECTION G. Verification findings - General

G.1. Compliance of the monitoring report with the monitoring report form

Means of verification	ERM CVS evaluated whether the monitoring report has been prepared in accordance with the applicable Monitoring Report Form and correctly presents the status of post registration changes that are relevant to the project activity. ERM CVS compared the monitoring report with the applicable monitoring report form.
Findings	ERM CVS confirms that the monitoring report has been appropriately prepared using the applicable monitoring report form, and that all sections are completed. During the current monitoring period, the monitoring plan of the PoA was changed via two post-registration changes (PRCs) which were approved on 15 June 2012 /20/ and 06 May 2015 (PRC ref no. PRC-2535-001)/05/ respectively. The first PRC changed the sampling plan of the PoA. The second request was made as the CME was not able to monitor the hours of usage of project CFLs. As per the revised monitoring plan the CPAs included under the PoA will apply the lower bound value of the confidence interval of mean usage hours of CPA 1 from the first monitoring period. These changes in monitoring plan are reflected in Version 08 of the registered (updated and approved) PoA-DD and accurately presented in the

	Monitoring Report. The Monitoring Report also correctly presents that a temporary deviation to the registered monitoring plan has been applied during this monitoring period. The request was approved on 10 June 2016 (PRC ref No. PRC-2535-002)/06/. The approved deviation allows applying the results of the monitoring survey in early 2016 to CPAs 02 to 25 for a period from 22 May 2013 to the end of March 2016, i.e. for a period of almost 3 years instead of annually, as stipulated by the monitoring plan and the methodology. The status of the temporary deviation to the registered monitoring plan has been accurately presented in the Monitoring Report. Additionally, the Monitoring Report accurately presents that changes to the start date of the crediting period for CPA 2535-0002 to CPA 2535-0025 were approved by the UNFCCC secretariat on 06 April 2016. The revised crediting periods for the mentioned CPAs are 22 May 2013 - 21 May 2023 and this is accurately presented in the MR. The monitoring report was found, through document review, to correctly state the implementation and operational status of the project activity, in accordance with the Guidelines.
Conclusion	ERM CVS confirms that the monitoring report has been appropriately prepared using the applicable monitoring report form, and that all sections are completed.

G.2. Remaining forward action requests from validation and/or previous verification

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Forward Action Request	Date and document (Validation or verification)	Verification activities undertaken to close the FAR	Draft OK/ CAR/CL	Final OK/ Not OK
ERM CVS reviewed the CDM PoA validation report /07/ for this project, and no FARs were recorded.	N/A	N/A	N/A	N/A
ERM CVS reviewed the CDM PoA 1st verification report /08/ for this project, and no FARs were recorded.	N/A	N/A	N/A	N/A

G.3. Specific-case CPA(s) considered for verification and covered in this report

Reference number of the specific-case CPA included in the PoA as of the end of this monitoring period	Is the specific-case CPA considered for this verification? (yes/no)	Version number of the registered PoA-DD to which the specific-case CPA complies with	Confirmation that a request for issuance including the specific-case CPA has been published for the previous monitoring period (Y/N)
2535-0002	Yes	Version 8.0, 11 July 2014	N/A
2535-0003	Yes	Version 8.0, 11 July 2014	N/A
2535-0004	Yes	Version 8.0, 11 July 2014	N/A
2535-0005	Yes	Version 8.0, 11 July 2014	N/A
2535-0006	Yes	Version 8.0, 11 July 2014	N/A
2535-0007	Yes	Version 8.0, 11 July 2014	N/A
2535-0008	Yes	Version 8.0, 11 July 2014	N/A

2535-0009	Yes	Version 8.0, 11 July 2014	N/A
2535-0010	Yes	Version 8.0, 11 July 2014	N/A
2535-0011	Yes	Version 8.0, 11 July 2014	N/A
2535-0012	Yes	Version 8.0, 11 July 2014	N/A
2535-0013	Yes	Version 8.0, 11 July 2014	N/A
2535-0014	Yes	Version 8.0, 11 July 2014	N/A
2535-0015	Yes	Version 8.0, 11 July 2014	N/A
2535-0016	Yes	Version 8.0, 11 July 2014	N/A
2535-0017	Yes	Version 8.0, 11 July 2014	N/A
2535-0018	Yes	Version 8.0, 11 July 2014	N/A
2535-0019	Yes	Version 8.0, 11 July 2014	N/A
2535-0020	Yes	Version 8.0, 11 July 2014	N/A
2535-0021	Yes	Version 8.0, 11 July 2014	N/A
2535-0022	Yes	Version 8.0, 11 July 2014	N/A
2535-0023	Yes	Version 8.0, 11 July 2014	N/A
2535-0024	Yes	Version 8.0, 11 July 2014	N/A
2535-0025	Yes	Version 8.0, 11 July 2014	N/A

SECTION H. Verification findings – Programme of activities

H.1. Compliance of the programme implementation with the registered programme design document

Means of verification	Based on the review of documentation provided, and the site visit, ERM CVS assessed whether the PoA has been implemented and operated in accordance with operational criteria set out in the PoA-DD /03/, and whether any deviation or proposed or actual changes in the implementation or operation of the PoA has taken place. During the ERM CVS site visit, the verification team • Visited a selection of sites from all CPA blocks (1-4); • Checked project CFLs in a sample of households and interviewed householders about their use and durability. • Interviewed staff responsible for monitoring and implementation of the project. • Reviewed the relevant training materials and training records.
Findings	A temporary deviation to the registered monitoring plan has been applied during this monitoring period. The request was approved on 10 June 2016 (PRC ref No. PRC-2535-002)/06/. The approved deviation allows applying the results of the monitoring survey in early 2016 would be applied for CPAs 02 to 25 for a period from 22 May 2013 to the end of March 2016, i.e. for a period of almost 3 years instead of annually, as stipulated by the monitoring plan and the methodology. ERM CVS has confirmed that the PoA has been implemented as described in the registered PoA-DD including the monitoring plan /03//04/ and any deviations to the registered monitoring plan have already been approved /06/. The operation of the PoA during the monitoring period was therefore confirmed to be in line with the CDM requirements/03/. The project CFL distribution, implementation etc. is addressed in section H.2. Please refer to section H.2 below.
Conclusion	Based on the verifier's site visit, review of documentation, and interviews, it can be confirmed that the programme implementation complies with the design of the PoA set out in the registered/approved PoA-DD. Any deviations to the monitoring plan have been approved. The information provided in the monitoring report correctly states the implementation and operational status of the PoA.

H.2. Implementation and operation of the management system

Means of verification	ERM CVS reviewed the description of the operation and management system as set out in the registered PoA-DD, and conducted on-site investigations to determine whether the operation and management structures required for monitoring have been put in place.
Findings	The operation and management system includes provisions for record keeping, including measures to avoid double counting. The Project CFL exchange for CPAs 02-25 during the period July 2011-June 2012 occurred in the outlets of distribution partners and through mobile units across Mexico. The distribution units were noted as Soriana, Chedraui and Coppel – large retailers spread across the country. In order to get to users in harder to reach places, additional Project CFLs were made available for exchange via mobile units. Each distribution outlet & mobile unit exchanged the light bulbs and captured the details of the customers into a Data Management System (DMS). The name, address of each customer and their 'utility service code' (a unique identification code provided to each house connected to the electricity grid by national utility CFE) was recorded in the DMS, ensuring that each household could be unambiguously defined. As the utility folio / service code is a unique number for each household, it was used to ensure that no double counting had occurred. ERM CVS has checked the distribution records and confirmed that no duplicate records were found /14/. Since the distributions were managed by the Mexican Government, the DMS was centrally held by the Government. Due to Government regulations, the CME was unable to access the personal details of the end users (e.g. name, address etc.) held within the DMS /13/. ERM CVS checked the individual CPA distribution records /12/ that are extracted from the Data Management System and confirmed that they contain the required data as per the registered PoA (date of purchase, individual reference number of the exchange point, name and code of the distributing partner, the wattage power of each of the incandescent bulbs exchanged, and the Region, State and Municipality of the exchange). Since end users were not required to sign any paperwork during the exchange, there were no original copies of receipts that ERM CVS needed to cross check during the site visit. An electronic database has been maintained and managed by the CME. This was confirmed by interviews with the CME on site /C.3/. As per the registered PoA-DD and the Monitoring Report, the number of CFLs distributed under each CPA must correspond to the number of incandescent bulbs collected and scrapped. For each customer transaction, field teams collected information on the number and wattage of incandescent bulbs exchanged for CFLs and entered it into the data management system (DMS). At the conclusion of the distribution process, the DMS provided a record of the total numbers of bulbs exchanged. ERM CVS confirmed that the total number of project CFLs exchanged /02/12/ corresponded with the total number of ILBs collected and destroyed /14/ as per the supporting documentation reviewed. CL 01 is raised for the CME to provide evidence of the checks carried out in the DMS to ensure that the CFLs corresponded with the number of ILBs exchanged at the time of the distribution. CL 01 is closed. Please refer to Appendix 4 for further details. The incandescent bulbs provided by households as part of the exchange programme were collected for destruction and recycling in line with the methodology. The ILBs collected during the distribution were transported to a waste management company, Sitrasa, who handled the scrapping of the bulbs. ERM CVS checked the letter from the waste management company /15/ to confirm that the scrapping of the ILBs was performed in accordance with the Mexico government regulations and in line with the methodology. Additionally ERM CVS reviewed the documentation produced by the Mexican Govt. which detailed the procedure for destruction of the collected ILBs /14/, which is in line with the number of CFLs

	distributed under the CPAs 02-25 /02/12/. Furthermore the monitoring report states that the CME used the services of a local environmental audit firm to conduct independent verification of the scrapping of incandescent light bulbs collected during the distribution process – CL 02 is raised for the CME to share documentation with reference to this process. The CME has clarified that the Government Notary is the independent entity that documented and verified the process of destruction of ILBs. The MR has been revised to accurately reflect this. CL 02 is closed. Please refer to Appendix 4 for further details. As mentioned earlier, due to Mexico government regulations, the CME was unable to access the personal details of the end users (e.g. name, address etc.)/13/. Instead, the CME relied on the 'utility service code', collected during the distributions, which uniquely identified each household. In order to conduct the monitoring survey, the CME was able to procure the addresses of the participating households by visiting CFE kiosks and keying in the utility service code of participating households. The CME has used the services of a third party company called Strategy Success to carry out the monitoring survey for the 2nd monitoring period. During the site visit, ERM CVS interviewed Strategy Success personnel who carried out the surveys /C.3/ and reviewed training and capacity development of personnel. Topics covered include monitoring strategy, approach to interviews, common issues likely to be encountered, survey form filling guidance etc. During the interviews on site, the interviewees confirmed that surveyors were selected based on their qualifications and experience. CL 03 is raised for the CME to provide evidence of competency selection and formal training provided to the surveyors (training provided by the CME to surveyors as well as internal training carried out by Strategy Success). CL 03 is closed. Please refer to Appendix 4 for further information. Strategy Success provided monitoring training to all surveyors (those who carried out the Project Cross Check Sample Group (PCCG) survey), and ERM CVS has reviewed the training material provided /23/24/25/. For details on the training topics covered please refer to the closeout of CL 03 in Appendix 4. ERM CVS also checked whether an appropriate management and operational system for monitoring and reporting, including responsibilities and authorities has been established in accordance with the monitoring plan. Through interviews with the staff of CME, implementing partners, and monitoring team /C.3/ ERM CVS confirmed that the CME has organised an appropriate management and operational system for monitoring and reporting. The CME is responsible for the management of records and data associated with each SSC-CPA (i.e. CPA 2535-0002 to CPA 2535-0025). The CME is in charge of: • Collection of incandescent nameplate data • Collection of CFL nameplate data • Checking that the incandescent bulbs and project CFLs correspond • Checking that incandescent bulbs have been appropriately scrapped and the process is verified • Management of Data Management System The CME is also responsible for overseeing the implementation of the surveys (PCCG), QA/QC of the data, analysis and reporting into the monitoring report. ERM CVS confirmed this through interviews with the CME /C.3/, and by review of a data flow diagram of the monitoring process in the monitoring report /01/.
Conclusion	The implementation and operation of the PoA management system, including the record-keeping system, complies with the registered PoA design document (PoA-DD). The management system has been implemented, including aspects such as training and capacity development for personnel, and data and documentation control processes.

H.3. Post-registration changes

H.3.1. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

>>
A temporary deviation to the registered monitoring plan has been applied during this monitoring period. The request was made to the UNFCCC secretariat on 01 April 2016 (PRC ref No. PRC-2535-002) and was approved on 10 June 2016/06/.

H.3.2. The request was made as the CME was temporarily unable to monitor the registered PoA in accordance with the registered (approved revised) monitoring plan and the applied methodology: ongoing operation of project lamps should be monitored annually but due to changes to the CME the monitoring did not take place for a period of time.Corrections

>>
Not applicable

H.3.3. Inclusion of a monitoring plan in a registered PoA-DD (including its generic CPA-DD(s))

>>
Not applicable

H.3.4. Permanent changes to the monitoring plan as described in the registered PoA-DD, applied methodology, or applied standardized baseline

>>
During this monitoring period, the monitoring plan of the PoA was changed permanently - this was approved on 06 May 2015 (PRC ref No. PRC-2535-001)/05/. The request was made as the CME was not able to monitor the hours of usage of project CFLs. As per the revised monitoring plan the CPAs included under the PoA will apply lower bound value of the confidence interval of mean usage hours of CPA 01 from the first monitoring period.

This change in monitoring plan is reflected in the (updated and approved) registered PoA-DD.

H.3.5. Changes to the programme design of the registered PoA-DD (including corresponding changes to project design of the generic CPA-DD(s)) and updates to the eligibility criteria for inclusion of specific-case CPAs in the PoA

>>
Not applicable

H.3.6. Types of changes specific to afforestation and reforestation activities

>>
Not Applicable

SECTION I. Verification findings – Component project activity(ies)

I.1. Compliance of the CPA implementation with the included CPA design document

Means of verification	ERM CVS, by means of an on-site inspection, assessed that all physical features (technology, project equipment, and monitoring and metering equipment) of the

included CPAs in the registered CPA-DDs are in place and that the project participants or the coordinating/managing entity have operated the CPAs as per the registered/approved CPA-DDs.

Findings

ERM CVS reviewed the project CFLs in the households and confirmed that they match the description of the bulbs in the registered CPA-DDs. The types of CFLs distributed were confirmed to be Phillips model (details below), based on site visit observations in households. This is consistent with the registered PoA-DD and CPA-DDs /03, 04/.
The technical specifications of the project CFLs from the supplier were also checked /16/ to confirm that the CME has operated the CPAs as per the registered CPA-DDs.

Parameter	Value
Model	Philips E27
Ballast Type	Integrated
Voltage	120V
Frequency	60Hz
Energy Consumption	23W
Luminous Efficacy	67lm/W
Power Factor	0.55
Colour Temperature	4,100k
Conservative lifetime estimate	10,000 hours

ERM CVS checked the individual CPA distribution records /12/ and confirmed the total number of CFLs exchanged per CPA is accurately reflected in the monitoring report and the ER calculations/01/02/. The start date and end date of distributions were also checked and confirmed as below:

CPA	Total number of CFLs Distributed	CFL Distribution Start Date	CFL Distribution End Date
CPA 2535-0002	948,780	04/07/2011	15/08/2011
CPA 2535-0003	944,948	15/08/2011	29/08/2011
CPA 2535-0004	945,336	29/08/2011	12/09/2011
CPA 2535-0005	942,400	12/09/2011	26/09/2011
CPA 2535-0006	942,224	26/09/2011	07/10/2011
CPA 2535-0007	943,312	07/10/2011	17/10/2011
CPA 2535-0008	939,136	17/10/2011	25/10/2011
CPA 2535-0009	947,016	25/10/2011	02/11/2011
CPA 2535-0010	949,120	02/11/2011	10/11/2011
CPA 2535-0011	949,776	10/11/2011	17/11/2011
CPA 2535-0012	952,216	17/11/2011	25/11/2011
CPA 2535-0013	951,424	25/11/2011	03/12/2011
CPA 2535-0014	951,304	03/12/2011	14/12/2011
CPA 2535-0015	951,848	14/12/2011	27/12/2011
CPA 2535-0016	955,548	27/12/2011	10/01/2012
CPA 2535-0017	961,964	10/01/2012	22/01/2012
CPA 2535-0018	963,400	22/01/2012	31/01/2012
CPA 2535-0019	964,788	31/01/2012	09/02/2012
CPA 2535-0020	967,108	09/02/2012	20/02/2012
CPA 2535-0021	968,120	20/02/2012	29/02/2012
CPA 2535-0022	968,332	29/02/2012	11/03/2012
CPA 2535-0023	972,132	11/03/2012	26/03/2012
CPA 2535-0024	970,436	26/03/2012	25/05/2012
CPA 2535-0025	949,336	25/05/2012	14/06/2012
Total	22,900,004		

The project CFL bulb distributions were therefore confirmed to have only taken place after the start date of all the above CPAs (10/05/2011) – which was validated as the date of earliest real action or implementation during the time of CPA

inclusion. There were no distributions before the start date of the CPAs.

Based on the CDM website, the crediting period of all of the above CPAs started on 22 May 2013. The previous monitoring period covered only the first CPA during the period 01 Dec 2009 – 30 Nov 2010. The current monitoring period (01 Dec 2010 - 31 Mar 2016) therefore correctly starts immediately after the end of the previous monitoring period.

From the start of this monitoring period (01 Dec 2010) to the start of the crediting period of CPAs covered in this report (21 May 2013) only CPA 2535-0001 could be credited but it is not covered by the monitoring report 01 verified in this verification report. Therefore for the period 01 Dec 2010 – 21 May 2013 the emission reductions are zero. From 22 May 2013 onwards till the end of the monitoring period, emission reductions are recorded.

The number of CFLs distributed under each CPA (each household received 4 CFLs in exchange for 4 ILBs) was compared with the numbers stated in the corresponding CPA-DDs:

	Predicted in the CPA-DD	**Actually distributed in this monitoring period**
CPA 2535-0002	948,780	948,780
CPA 2535-0003	944,948	944,948
CPA 2535-0004	945,336	945,336
CPA 2535-0005	942,400	942,400
CPA 2535-0006	942,224	942,224
CPA 2535-0007	943,312	943,312
CPA 2535-0008	939,136	939,136
CPA 2535-0009	947,016	947,016
CPA 2535-0010	949,120	949,120
CPA 2535-0011	949,776	949,776
CPA 2535-0012	952,216	952,216
CPA 2535-0013	951,424	951,424
CPA 2535-0014	951,304	951,304
CPA 2535-0015	951,848	951,848
CPA 2535-0016	955,548	955,548
CPA 2535-0017	961,964	961,964
CPA 2535-0018	963,400	963,400
CPA 2535-0019	964,788	964,788
CPA 2535-0020	967,108	967,108
CPA 2535-0021	968,120	968,120
CPA 2535-0022	968,332	968,332
CPA 2535-0023	CL 04 – Registered CPA-DD makes reference to 968,332 and 972,132 both. CL 04 is closed. Please refer to Appendix 4.	972,132
CPA 2535-0024	970,436	970,436
CPA 2535-0025	949,336	949,336

As noted above, registered CPA-DD for CPA 23 makes reference to 968,332 as well as 972,132 number of CFL bulb distributions for the CPA. CME to clarify –

	please refer to CL 04. CL 04 is closed. Please refer to Appendix 4 for further details. Service code IDs are used for unique identification of the households participating in the programme. The project CFLs are denoted with FIDE logos, viver major logo as well as programme name 'Luz Sustentable' to distinguish them from other CFLs /16/. The service code IDs are recorded on the database and are cross checked at the time of monitoring. ERM CVS checked the service code IDs for face to face interviews during the verification survey to confirm that the survey forms were recording the service code IDs consistently and confirmed that this cross check was taking place/11/. As per the PoA-DD, each SSC-CPA shall be uniquely identified and defined in an unambiguous manner by providing geographic information (…etc.). The description in the monitoring report regarding the distribution locations is insufficiently clear. Section A.1 of the monitoring report does not present the locations where project CFLs have been distributed during this monitoring period for all included CPAs. Please refer to CL 05. CL 05 is closed after the CME has revised the monitoring report. Please refer to Appendix 4 for further details.
Conclusion	Based on the verifier's site visit, visual inspection and review of the supporting documentation it can be confirmed that the CPAs have been implemented in accordance with the CPA-DDs. During the 1st monitoring period, a sample of the installed units was monitored to determine the operating hours using run time meters. Following the approved PRC-2535-001/05/, the operating hours measured during the 1st monitoring period will now be fixed for all future verifications for this PoA. Therefore no specific monitoring equipment had to be installed according to the updated and revised monitoring plan /06/. The information provided in the monitoring report correctly states the implementation and operational status of the project activity.

I.2. Post-registration changes

I.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

>>
A temporary deviation to the registered monitoring plan has been applied during this monitoring period. The request was made to the UNFCCC secretariat on 01 April 2016 (PRC ref No. PRC-2535-002) and was approved on 10 June 2016/06/.

The approved deviation allows applying the results of the monitoring survey in early 2016 to CPAs 02 to 25 for a period from 22 May 2013 to the end of March 2016, i.e. for a period of almost 3 years instead of annually, as stipulated by the monitoring plan and the methodology.

I.2.2. Corrections

>>
Not applicable

I.2.3. Changes to the start date of the crediting period

>>

Changes to the start date of the crediting period for CPA 2535-0002 to CPA 2535-0025 were approved by the UNFCCC secretariat on 06 April 2016. The revised crediting periods for the mentioned CPAs are 22 May 2013 - 21 May 2023.

I.2.4. Inclusion of a monitoring plan to an included CPA-DD

>>
Not applicable

I.2.5. Permanent changes to the monitoring plan as described in the included CPA-DD, applied methodology, or applied standardized baseline

>>
During this monitoring period, the monitoring plan of the PoA and the CPAs was changed permanently twice – the first one changed the sampling plan and was approved on 15 June 2012 /20/.

The second one was approved on 06 May 2015 (PRC ref No. PRC-2535-001)/05/. The request was made as the CME was not able to monitor the hours of usage of project CFLs. As per the revised monitoring plan the CPAs included under the PoA will apply lower bound value of the confidence interval of mean usage hours of CPA 01 from the first monitoring period.

These changes in monitoring plan are reflected in the (updated and approved) registered PoA-DD and the included CPA-DDs.

I.2.6. Changes to the programme design of the included CPA-DD

>>
Not applicable

I.2.7. Types of changes specific to afforestation and reforestation component project activities

>>
Not applicable

I.3. Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline

Means of verification	The PoA-DD and CPA-DDs /03/04/ were reviewed against the methodology and any applicable tools applied.
Findings	All required parameters are included in the monitoring plan in line with methodology requirements and any applicable tools. ERM CVS confirms that the monitoring plan includes appropriate provisions for the organisation and management structure, monitoring and reporting procedures, measuring instruments, staff training, QA/QC procedures, data management and improvement to comply with the monitoring methodology. The monitoring plan is therefore confirmed to be in compliance with the applied methodology. ERM CVS did not note any relevant monitoring aspects that are not specified in the methodology, which may enhance the level of accuracy and completeness of the monitoring plan.
Conclusion	The monitoring plan is confirmed to be in compliance with the applied methodology.

I.4. Compliance of monitoring activities with the registered monitoring plan

I.4.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	The verification team evaluated the status of data and parameters that were determined at registration and not monitored during the monitoring period, including default values and factors, and confirmed whether they were correctly presented in Section D.1 of the monitoring report and applied correctly in the emission reduction calculations.
Findings	ERM CVS confirms that monitoring processes for the data and parameters, which are required to be monitored by the methodology, are included in the monitoring plan. In accordance with the methodology, the CME recorded the number and 'power' of the replaced devices, i.e. Incandescent bulbs at the point of exchange and distribution of project CFLs. Moreover, as noted in section H.2, the incandescent bulbs provided by households as part of the exchange programme were collected for destruction and recycling in line with the methodology. Please refer to the section H.2 for further details of how this was verified. The CME also recorded the 'power' of the distributed project CFLs at 23W /04/. A sample of the installed units was monitored to determine the operating hours using run time meters during the 1st monitoring period. Following the approved PRC-2535-001/05/, the operating hours measured during the 1st monitoring period will now be fixed for all future verifications for this PoA. Additionally, owing to PRC-2535-002/06/, a temporary deviation has been obtained for this monitoring period to allow for the CME not performing annual checks of a sample of non-metered systems to ensure that they are still operating. The monitoring of the registered PoA could not take place in accordance with the registered (approved revised) monitoring plan and the applied methodology temporarily due to changes in the CME. Furthermore, according to the methodology, the aggregate energy savings by a single project may not exceed the equivalent of 60 GWh per year. CL 06 is raised to request the CME to present the aggregate energy savings of each CPA in the monitoring report. CL 06 is closed. Please refer to Appendix 4 for further details. The parameters were correctly presented in the monitoring report and applied appropriately in the emission reduction calculations.
Conclusion	ERM CVS confirms that the parameters were correctly presented in the monitoring report and applied appropriately in the emission reduction calculations.

I.4.2. Data and parameters monitored

Means of verification	ERM CVS evaluated whether the monitoring of parameters relating to the GHG emissions reductions in the project activity has been implemented in accordance with the monitoring plan /04/. The verification team evaluated whether • The monitoring plan /04/06/ has been properly implemented and followed by the PPs,: • All parameters stated in the monitoring plan, the applied methodology and relevant EB decisions have been sufficiently monitored and updated as applicable • The management and operational system for monitoring has been implemented correctly;

	• Monitoring results are consistently recorded as per approved frequency; • Quality assurance and quality control procedures have been applied in accordance with the monitoring plan or the revised monitoring plan. During the ERM CVS site visit, the verification team • Visited and inspected all CPA blocks (1-4); • Visited a sample of households to observe the project CFLs in the field and interview households about their use. • Interviewed the staff responsible for the monitoring and implementation of the project • Reviewed relevant training materials and training records
Findings	ERM CVS's findings for each monitored parameter are presented in Appendix 6.
Conclusion	ERM CVS confirms that the all monitoring parameters stated in the monitoring plan, the applied methodology and the relevant CDM EB decisions have been appropriately monitored. Please see Appendix 6 for further details.

I.4.3. Implementation of sampling plan

Means of verification	ERM CVS reviewed the sampling plan in the registered PoA-DD, Annex 7 Cuidemos Mexico PoA – Sampling Plan and included CPA-DDs, reviewed the actual sampling efforts carried out, including through a visit to the project site, interviews with personnel involved in sampling and surveys, and visits to a subset of households that were included in the CME's sample survey, and assessed the compliance of the sampling efforts and surveys with the validated sampling plan in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities".
Findings	The following two sampling groups are addressed in the sampling plan for the PoA: • The Project Sample Group (PSG) to monitor a representative sample of all participating households in the PoA and establish the operating hours of the CFLs in those households using run time meters. • The Project Cross Check Sample Group (PCCG) to survey a sample of non-metered households to estimate the number of CFLs installed that are still in operation out of the total of four distributed per household. Although this is an annual requirement as per the PoA sampling plan – the temporary deviation for this monitoring period /06/ allows for an exemption for this monitoring period. Therefore this sample group was generated only once for this monitoring period to estimate the number of CFLs still in operation across the selected sample group of households (monitoring survey). PSG: During the 1st monitoring period, a sample of the installed units was monitored to determine the operating hours using run time meters /05/08/. Following the approved PRC-2535-001/05/, the operating hours measured during the 1st monitoring period will now be fixed for all future verifications for this PoA. Therefore, PSG is not required for the project/05/, and therefore this report will only address the second sampling group – PCCG. PCCG: Since CFLs installed in the same period were expected to have similar operating lives, CPAs for this PoA were grouped into blocks according to the distribution dates. All CPAs where distribution occurred within a three-month period are combined for the purposes of this estimation under a 'Block'. CPAs 02-25 fall under

4 different blocks based on the dates of distribution /12/. ERM CVS checked the grouping of households into blocks and no issues were found.

Survey Description:

CL 07 is raised for the CME to share the sample size calculation spreadsheets for the PCCG for verification. CME to further clarify if sampling was conducted separately for each block of CPAs, or if a larger sample was selected across all CPA blocks.

CL 07 is closed. It was confirmed that simple random sampling approach was applied to each block of CPAs using the list of all participating households for a given block of CPAs as the sampling frame. This was confirmed by reviewing the PCCG sample size calculations/26/ and other supporting documentation detailing the process of sampling or selection of households for the monitoring survey/27/. The approach used by the CME is in line with the sampling plan.

The CME therefore selected 500 random samples from each block of CPAs – totalling 2000 households from the entire project population. The samples were selected via a computerised randomiser website (using a random number generator in the website to select the unique IDs that corresponded to households from the DMS database). CME selected a sample of 2000 random unsorted households (500 per CPA block) and then Strategy Success - a Mexico based surveying company then conducted the surveys.

The surveys were conducted during the monitoring period from February to June 2016/C.3/28/. As per the sampling plan to meet the desired precision of 10% for a 95% confidence interval each block of CPAs needed to have a surveyed a minimum of 97 households (rounded up from 96.25 households) or 96.25*4 = 385 project CFLs from the selected sample. In order to account for outliers within each CPA block, the CME aimed to get 105 household surveys or 420 project CFL surveys per CPA block.

After going through the selected 2000 households, Strategy Success was not able to meet the minimum sample of 105 households per block (due to various reasons such as householders not wanting to be interviewed, surveyors not being able to find the addresses of the participating households or the participating householders had moved from the address etc.). Given that at the time of the survey four or more years had passed since the distribution of CLFs the low success of reaching and surveying the households is reasonable based on ERM CVS sector knowledge. The CME then selected another sample of 550 random unsorted households (100 for block 2, 200 for block 3, 250 for block 4 – block 1 had already met its target of 105 household surveys) using a computer randomiser and the surveyors continued the interviews. The process had to be repeated once more, till surveyors hit the mark of 97 valid households or 385 valid project CFLs per block.

Following is a table depicting the different CPA blocks and the number of monitoring surveys conducted for this monitoring period:

CPA Block	Included CPAs	Sample Size
Block 1	CPA 2535-0002, CPA 2535-0003, CPA 2535-0004, CPA 2535-0005, Part of CPA 2535-0006	110 households or 440 project CFLs
Block 2	Part of CPA 2535-0006 CPA 2535-0007, CPA 2535-0008, CPA 2535-0009, CPA 2535-0010, CPA 2535-0011, CPA 2535-0012,	101 households or 404 project CFLs

	CPA 2535-0013, CPA 2535-0014, CPA 2535-0015, Part of CPA 2535-0016	
Block 3	Part of CPA 2535-0016 CPA 2535-0017, CPA 2535-0018, CPA 2535-0019, CPA 2535-0020, CPA 2535-0021, CPA 2535-0022, CPA 2535-0023, Part of CPA 2535-0024	103 households or 412 project CFLs
Block 4	Part of CPA 2535-0024 CPA 2535-0025	102 households or 408 project CFLs

ERM CVS validated that the monitoring surveys were implemented in a way that minimises error and bias as follows:

Sampling methodology & sample size:
For validation of the reliability calculations and suitability of survey questions please refer to the validation of the relevant monitored parameters, in Appendix 6 below.

Survey preparation:
The monitoring survey was carried out by the CME and Strategy Success staff working together as a team, and taking into account Mexican householder preference of answering shorter, more succinct questionnaires for greater rate of completion of surveys with households. ERM CVS interviewed surveyors/enumerators from Strategy Success, responsible for the monitoring surveys. During the interviews on site, the interviewees confirmed that surveyors were selected based on their qualifications and experience, and that competency selection and training of surveyors was requested – please refer to CL 03. The CME provided CDM training to Strategy Success enumerators /23/24/ and Strategy Success provided monitoring surveyors with training on the monitoring of the project, including the survey requirements /24/. Enumerators carried these guidelines with them while carrying out the monitoring surveys, along with pictures of project CFLs for reference /16/ and a document detailing guidance on recycling of CFLs for the householders to keep post the interviews /17/. ERM CVS checked that the guidance was provided to households during the verification site visit.

From interviews with the enumerators/surveyors on site, it is clear that the survey questions and techniques were discussed during the training of surveyors. ERM CVS interviewed 2 surveyors during the site visit to discuss monitoring strategy, approach to interviews, common issues encountered during surveys, survey form filling guidance and application etc.

Survey implementation:

The monitoring survey was conducted during February – June 2016/C.3/28/. Surveyors visited individual households and recorded their observations in their forms according to the Groups below, as confirmed by guidance provided to the surveyors by the CME/21/:

Survey Classification	Classification Description	Verification Opinion
Group 1	Invalid address. The address was missing details that would allow the household to be located.	Since the addresses were procured using CFE kiosks, at times the addresses would be missing some information which would allow the surveyors to get to the houses.

Group 2	No resident at home when surveyor visited.	This is expected, since the surveyor may visit when the respondents are not home.
Group 3	Resident would not let us inside to check the lights.	From interviews with the CME and surveyors/C.3/ and ERM CVS's experience during the site visits, some respondents would not let surveyors enter homes due to security risk perceptions. This is considered reasonable, as it cannot be expected that a respondent who is not willing to answer the questions would provide accurate answers.
Group 4	Valid. Resident allowed us to enter the property to check the number of lights that were still operating.	As confirmed with interviews with the CME, only Group 4 interviews were considered valid.
Group 5	Invalid Address. Participant no longer lives there.	This is expected. As the service code IDs which identified the participating households are tied to the address (and not the household personnel), when participating households moved homes, their forwarding addresses could not be captured by the DMS.
Group 6	High Risk Area/Difficult access Area	Some areas within Mexico are considered high risk areas. Surveyors were not able to visit all areas within Mexico due to the high risk nature of travel security within the country. Since the same type of CFLs were distributed to all regions within Mexico, and choosing a different geographical area for surveying the usage of CFLs is not likely to impact the number of operational CFLs (geographical factors do not affect performance of CFL bulbs), this is considered acceptable.
Group 7	Did not participate in the program. The householder said that the light bulbs were never exchanged.	From interviews with the CME and surveyors/C.3/ and ERM CVS's experience during the site visits, some respondents would report not participating in the programme. This can be attributed to various reasons – for example: the participating end users could have moved. Since the service code IDs which identified the participating households are tied to the address (and not the household personnel), when participating households moved homes, the new household personnel would report not participating in the programme. Furthermore, due to security risk perceptions or due to lack of

		knowledge of the programme, some households would suggest they did not participate in the programme. From interviews with the CME and surveyors/C.3/ and ERM CVS's experience during the site visits, some of these households would not let surveyors enter their homes. Excluding these households is considered reasonable, as it cannot be expected that respondents who are not willing to answer the questions would provide accurate answers.
Group 8	Abandoned address, empty house.	This is expected. As the service code IDs which identified the participating households are tied to the address (and not the household personnel), when participating households moved homes, their forwarding addresses could not be captured by the DMS.

As confirmed above, only Group 4 interviews were considered valid. When surveyors encountered other situations, they would record their observations (according to Group codes) in their notes and make their way to the next household.

All monitoring surveys were conducted face to face. The surveys were done using paper based forms. The survey and survey form were identical for all CPA blocks and recorded the following information /11/:

- CPA Group and HH code *(each HH within a CPA group was given an ID number – this was recorded during the survey)*
- Survey Date
- Time
- Address
- Address reference *(as it can be difficult to locate houses in Mexico)*
- Name of Surveyor
- Number of working Project CFL bulbs in Household
- Location of each Project CFL bulb in Household
- Unique Identifier: Service Code ID of the Household
- Telephone number of the Household
- Name and signature of the Householder interviewed *(If they consent to giving their name and signature)*

As highlighted in the survey form and from interviews during the site visit, ERM CVS checked that surveyors were required to not only note the number of working CFLs, but also their location within the household where they were being used. The surveyors were additionally trained to check each project CFL for the programme logo in order to distinguish them from other CFL bulbs (this involved taking CFLs out of their fittings in some cases in order to check the base of the bulbs where the logos were imprinted), as well as to check whether the bulbs were fitted in an electric holder and in use during the time of the survey. Therefore any working bulbs found not in use would not be recorded as 'operational'. The surveyors would also check whether the project CFLs would switch on during their checks. This was confirmed during interviews with households visited during the site visit /C.3/.

There is also space on the survey form for the surveyor to make additional comments if they wish. The general practice however was for the surveyors to make notes on a separate notepad/sheet of paper and send their daily observations

	via. email to the Strategy Success (SS) head office along with a scan copy of the survey forms. The SS head office would then collate the information and transfer the results into an excel spreadsheet, and then provide the results to the CME. Anecdotal evidence suggests that surveyors did not record some project CFL bulbs as operational as they needed to rely on the households informing them as to where the project CFLs were located (due to security perceptions of the respondents the surveyors were not always allowed to enter all parts of homes). Of the 35 face to face interviews ERM CVS conducted, additional operational project CFLs were found in 11 of the households. However, since the surveyors were not able to see these CFLs during the monitoring survey, not capturing them on the form was deemed in line with the instructions they were given for the survey. Since this is a case of under-reporting, it is deemed conservative. ERM CVS therefore noted discrepancies only when there was a case of over-reporting. Please refer to Appendix 6 for further information on the verification survey results. <u>Survey QA/QC:</u> The filled-in survey forms are signed by the surveyor. The paper forms are kept by Strategy Success at their head office in Mexico City, and they are also scanned and backed up as electronic (scanned) copies. During the monitoring process, CME representatives accompanied Strategy Success on a few randomly selected surveys to confirm that the surveys were being conducted in line with instructions. However, this level of QA/QC is found to be inadequate. CAR 01 was raised for the CME to review the survey results database – this was subsequently closed. Please refer to Appendix 4 for further details on how this issue was addressed for the current monitoring period. For future verifications, the CME is to perform more rigorous QA/QC. FAR 01 is raised. The filled-in survey forms are checked by Strategy Success, and surveyor notes provided in an email are used as cross checks to record the total number of working and in-use project CFLs in each household. During the site visit, ERM CVS noted that the surveyor notes provided some additional information which enabled the head office to record a different number of operational CFLs in comparison with what was noted in the survey form e.g. Group 3 – HH ID 88: survey form had recorded 1 project CFL was seen but the surveyor notes indicated that the bulb was no longer working despite being in a fitting. Therefore the head office recorded 0 operational project CFLs in the household (which is appropriate and confirms that the notes were used as part of survey data processing). Since surveyor notes provided additional explanation of the observations during the monitoring survey, and helped bridge gaps between the survey form and information recorded by Strategy Success in the excel spreadsheet capturing monitoring results, ERM CVS notes that the surveyor notes should be captured directly on the survey form. For future verifications, in order for all relevant information to be captured in one place, the CME is to to ensure that all surveyor notes are captured in the survey form. FAR 02 is raised. In conclusion, ERM CVS confirmed that surveys were implemented and data collected in a way that minimises errors and bias and ensures a conservative estimate of emission reductions.
Conclusion	The sampling and surveys were carried out in line with the sampling plan and monitoring plan in the registered PoA-DD and CPA-DDs. The sampling approach and sample size determination was consistent with the sampling plan, and the sampling and surveys were carried out in accordance with the requirements of the 'Standard: Sampling and surveys for CDM project activities and programme of activities' and the 'Guideline: Sampling and surveys for CDM project activities and programmes of activities'.

I.5. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	Not applicable. No monitoring equipment requiring calibration was installed as part of the monitoring plan /05/.

Findings	Not applicable. No monitoring equipment requiring calibration was installed as part of the monitoring plan /05/.
Conclusion	Not applicable. No monitoring equipment requiring calibration was installed as part of the monitoring plan /05/.

I.6. Assessment of data and calculation of emission reductions or net removals

I.6.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	ERM CVS evaluated the data and calculations of baseline emissions of the project activity by the application of the selected approved methodology. In conducting this evaluation, the verification team evaluated whether: • A complete set of data for the monitoring period was available, • Information provided in the monitoring report has been cross checked with other sources such as inventories, purchase records, laboratory analysis; • Calculations of baseline emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology; • Any assumptions used in the emission calculations have been justified; • Appropriate emission factors, IPCC default factors and other reference values have been correctly applied. • The first day in which CERs are being claimed has been correctly specified
Findings	ERM CVS confirmed that the calculation of baseline emissions as set out in the emission reduction calculation spreadsheet /02/ has been based on appropriate methods and formulae and that the calculation of baseline emissions during the monitoring period is accurate and in line with the monitoring plan and methodology. ERM CVS has confirmed that the emission reduction calculation spreadsheet /02/ and all assumptions, emission factors and default factors that have been applied have been appropriately justified and applied. Based on the CDM website, the crediting period of CPAs 02-25 start on 22 May 2013. The previous monitoring period covered only the first CPA during the period 01 Dec 2009 – 30 Nov 2010. However, CPA 1 is not covered by the monitoring report 01 and by this verification report. Therefore for the period 01 Dec 2010 – 21 May 2013 there will be no emission reductions for the CPAs covered in this monitoring report /01/ and verification report. From 22 May 2013 onwards till the end of the monitoring period, emission reductions will be recorded. The MR presents all assumptions used in monitoring surveys and tests – assumptions were used in sample size calculations. Please refer to Appendix 6 validation of sample size and surveys. The assumptions used are in line with the registered PoA-DD /03/. All other assumptions, emission factors and default values used were set at the validation stage /07/. ERM CVS also confirmed that the ex-ante parameters of $\mathbf{L_k}$ (Number of CFLs to be distributed by the SSC-CPA implementer), $\mathbf{n_{PCCG}}$ (Total sample size used for checking to ensure ongoing operation of project devices) and **EF** (Emissions factor for electricity displaced from the grid relevant to the project boundary) are accurately presented for all CPAs and the values in the monitoring report are in line with the registered CPA-DDs/04/. ERM CVS checked the ER spreadsheet /02/ and the distribution database /12/ to confirm the values are correctly applied.

	ERM CVS confirmed that all data and formulae in the final documents have been correctly presented.
Conclusion	Baseline emissions have been calculated in accordance with the monitoring plan and the applied methodology, and it was determined that the data processing and emission reductions calculations resulted in real and measurable emission reductions. All assumptions, emission factors and default values have been justified and the information has been cross checked with other sources.

I.6.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	ERM CVS evaluated the data and calculations of project emissions (emission reductions) resulting from the project activity by the application of the selected approved methodology. In conducting this evaluation, the verification team evaluated whether: • A complete set of data for the monitoring period was available, • Information provided in the monitoring report has been cross checked with other sources such as inventories, purchase records, laboratory analysis; • Calculations of project activity emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology; • Any assumptions used in the emission calculations have been justified; • Appropriate emission factors, IPCC default factors and other reference values have been correctly applied.
Findings	ERM CVS confirmed that the calculation of project emissions as set out in the emission reduction calculation spreadsheet /02/ has been based on appropriate methods and formulae and that the calculation of baseline emissions during the monitoring period is accurate and in line with the monitoring plan and methodology. ERM CVS has confirmed that the emission reduction calculation spreadsheet /02/ and all assumptions, emission factors and default factors that have been applied have been appropriately justified and applied. ERM CVS confirmed that all data and formulae in the final documents have been correctly presented.
Conclusion	Project emissions have been calculated in accordance with the monitoring plan and the applied methodology, and it was determined that the data processing and emission reductions calculations resulted in real and measurable emission reductions. All assumptions, emission factors and default values have been justified and the information has been cross checked with other sources.

I.6.3. Calculation of leakage GHG emissions

Means of verification	All incandescent bulbs exchanged were destroyed, and therefore leakage is assumed to be zero in accordance with the registered PoA-DD. Since this result in the equipment being destroyed and not transferred to another project activity, this is in line with the methodology.
Findings	Since all incandescent bulbs received were destroyed, leakage is assumed to be zero. This is in line with the methodology.
Conclusion	Since all incandescent bulbs received were destroyed, leakage is assumed to be zero. This is in line with the methodology.

I.6.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	ERM CVS evaluated the data and calculations of emission reductions resulting from the PoA by the application of the selected approved methodology. In conducting this evaluation, the verification team evaluated whether: • A complete set of data for the monitoring period was available, • Information provided in the monitoring report has been cross checked with other sources such as log books, inventories, purchase records, laboratory analysis; • Calculations of emission reductions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology; • Any assumptions used in the emission reduction calculations have been justified; • Appropriate emission factors, IPCC default factors and other reference values have been correctly applied.
Findings	ERM CVS confirmed that the calculation of emission reductions as set out in the emission reduction calculation spreadsheet /02/ has been based on appropriate methods and formulae and that the calculation of emission reductions during the monitoring period is accurate and in line with the monitoring plan and methodology ERM CVS has confirmed that the emission reduction calculation spreadsheet /02/ and all assumptions, emission factors and default factors that have been applied have been appropriately justified and applied. ERM CVS further confirms that the pro-rata approach was correctly applied to the calculations of GHG emission reductions or net anthropogenic GHG removals in accordance with the Project standard, as the monitoring period starts before 31 December 2012 and ends after that date. Since the monitoring period starts on 01 December 2010, but CPA 1 is not covered in this monitoring report /01/ and this verification report , the MR accurately reports zero emission reductions between 01 December 2010 and 21 May 2013. From 22 May 2013, CPAs 02-25 start their crediting periods and the MR and ER calculations spreadsheet accurately present the emission reductions between 22 May 2013 and 31 March 2016, which is the last day of the current monitoring period. ERM CVS confirmed that all data and formulae in the final documents have been correctly presented.
Conclusion	Emission reductions have been calculated in accordance with the monitoring plan and the applied methodology, and it was determined that the data processing and emission reductions calculations resulted in real and measurable emission reductions. Where there was any unavailability of data, conservative assumptions have been made. All assumptions, emission factors and default values have been justified and the information has been cross checked with other sources.

Specific-case CPA reference number	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)		
				Results achieved in the period up to 31 December 2012	Results achieved in the period from 1 January 2013 onwards	Results achieved in the entire monitoring period
2535-0002	10,703.622	3,212.200	0	0	7,491	7,491
2535-0003	10,690.649	3,199.226	0	0	7,491	7,491
2535-0004	10,691.963	3,200.540	0	0	7,491	7,491
2535-0005	10,682.014	3,190.600	0	0	7,491	7,491
2535-0006	10,681.415	3,190.004	0	0	7,491	7,491
2535-0007	12,560.826	3,754.327	0	0	8,806	8,806
2535-0008	12,544.198	3,737.707	0	0	8,806	8,806
2535-0009	12,575.577	3,769.069	0	0	8,806	8,806
2535-0010	12,583.946	3,777.442	0	0	8,806	8,806
2535-0011	12,586.578	3,780.053	0	0	8,806	8,806
2535-0012	12,596.257	3,789.764	0	0	8,806	8,806
2535-0013	12,593.116	3,786.612	0	0	8,806	8,806
2535-0014	12,592.658	3,786.135	0	0	8,806	8,806
2535-0015	12,594.805	3,788.300	0	0	8,806	8,806
2535-0016	12,609.507	3,803.025	0	0	8,806	8,806
2535-0017	17,491.405	5,300.075	0	0	12,191	12,191
2535-0018	17,499.287	5,307.987	0	0	12,191	12,191
2535-0019	17,506.920	5,315.634	0	0	12,191	12,191
2535-0020	17,519.749	5,328.417	0	0	12,191	12,191
2535-0021	17,525.295	5,333.992	0	0	12,191	12,191
2535-0022	17,526.478	5,335.160	0	0	12,191	12,191
2535-0023	17,547.395	5,356.097	0	0	12,191	12,191
2535-0024	9,592.918	2,924.551	0	0	6,668	6,668
2535-0025	9,330.587	2,860.963	0	0	6,469	6,469
Total	320,827.16	96,827.88	0	0	**223,989**	**223,989**

I.6.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included specific-case CPA

Means of verification	ERM CVS reviewed the monitoring report to confirm that the PP has compared the emission reductions with the number of emission reductions estimated in the CPA-DDs for an equivalent number of days as the monitoring period.
Findings	ERM CVS has reviewed the emissions reductions stated in the monitoring report and confirmed that the PP has described a comparison of the emission reductions during the monitoring period with the prediction in the PoA-DD.

Conclusion	The PP has appropriately presented the emission reductions for the monitoring period.

Specific-case CPA reference number	Value estimated in ex ante calculation in the included specific-case CPA-DD(s)	Actual values achieved by the specific-case CPA(s) during this monitoring period
2535-0002	82,409	7,491
2535-0003	82,409	7,491
2535-0004	82,409	7,491
2535-0005	82,409	7,491
2535-0006	82,409	7,491
2535-0007	82,409	8,806
2535-0008	82,409	8,806
2535-0009	82,409	8,806
2535-0010	82,409	8,806
2535-0011	82,409	8,806
2535-0012	82,409	8,806
2535-0013	82,409	8,806
2535-0014	82,409	8,806
2535-0015	82,409	8,806
2535-0016	82,409	8,806
2535-0017	82,409	12,191
2535-0018	82,409	12,191
2535-0019	82,409	12,191
2535-0020	82,409	12,191
2535-0021	82,409	12,191
2535-0022	82,409	12,191
2535-0023	82,409	12,191
2535-0024	82,409	6,668
2535-0025	79,953	6,469
Total	1,895,407	223,989

I.6.6. Remarks on difference from estimated value in registered PDD

Means of verification	ERM CVS reviewed the emission reduction spreadsheet, description set out in the monitoring report, and other evidence presented by the PP where applicable to justify the reasons for the difference in emission reductions between the included CPA-DDs and the actual monitored values.
Findings	ERM CVS has reviewed the emissions reductions stated in the monitoring report and confirmed that the PP has described a comparison of the emission reductions during the monitoring period with the prediction in the CPA-DDs. The predicted and actual emission reductions heavily depend on: • Average operating hours: actual operating hours were lower than the predicted operating hours. The lower end value of the confidence interval of the monitored operational hours in the first CPA was used for this monitoring period, which was demonstrated to be conservative in the PRC /05/. • Assumed CFL failure rate was much lower and in line with the curve provided by the manufacturer /05/. The actual failure turned out to be much higher; probably due to the quality of the electricity network.

	Due to the above reasons, the actual emission reductions are considerably lower than predicted for this monitoring period.
Conclusion	As the emission reductions are less than the estimation in the DDs for an equivalent length of the monitoring period, no further explanation is required.

Appendix 1. Abbreviations

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CL	Clarification Request
CME	Coordinating and Managing Entity
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPA	Component Project Activity
CPA-DD	CPA Design Document
DOE	Designated Operational Entity
EB	Executive Board
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas
GWP	Global Warming Potential
HH	Household
IPCC	Intergovernmental Panel on Climate Change
PoA	Programme of Activities
PoA-DD	PoA Design Document
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention for Climate Change
VVS	CDM Validation and Verification Standard
CFL	Compact Fluorescent Lamps
ILB	Incandescent Bulbs
CFE	Mexico National Utility - Comisión Federal de Electricidad
PCCG	Project Cross Check Sample Group
FIDE	Fideicomiso para el Ahorro de Energía Eléctrica
CUIDEMOS	Campana De Uso Intelegente De Energia Mexico

Appendix 2. Competence of team members and technical reviewers

Sushmita Seelam is a Lead Assessor and a Client Account Manager (CAM) based in London and has been with ERM CVS since July 2012. She is involved in conducting validations and verifications for CDM & Gold Standard Projects and Programmes of Activities (PoAs) under Scope 1: Energy industries (renewable/non-renewable sources), Scope 3: Energy demand, as well as in GHG Assurance projects and EU-ETS engagements in various sectors. Prior to ERM CVS, Sushmita had been working in the sustainability consulting service industry for three years. As a consultant, she has been involved in the development of over 25 CDM and VCS projects in various sectors. Her work also involves research and experience in supply chain evaluation, resource footprinting and life cycle assessment of commodities, with a focus on water and GHG footprinting for sectors such as global energy, agricultural commodities etc. Sushmita holds a B.E. in Environmental Engineering and an MSc in Environment and Sustainable Development. She has

also completed the ERM CVS CDM validation and verification training and the CDM Gold Standard training.

Neringa Pumputyte is a Lead Assessor, Client Account Manager (CAM) and Technical Reviewer (TR) at ERM CVS, where she works on validations and verifications of CDM and Gold Standard projects and Programmes of Activities (PoAs), as well as assurance assignments. She has 6 years of experience in climate change and GHG emission reductions, having worked as a consultant and project developer prior to joining ERM CVS. Neringa has successfully completed 7 validations of PoAs in the sectors of renewable energy, energy demand, and manufacturing; 5 Gold Standard verifications in the sector of energy demand; and worked on project validations in the sectors of landfill gas and fugitive emissions (oil and gas), as well as corporate GHG assurances. She has led development of the Gold Standard programme in ERM CVS. Before joining ERM CVS, Neringa worked on hydro, cook stove and animal waste handling projects as a project developer. Neringa has completed the ERM CVS CDM training, Gold Standard training, and GHGMI renewable energy training. Neringa also has a BSc and MSc in Geography, and an MSc in Environmental Change and Management from the University of Oxford.

Jonathan Avis is CDM Business Manager for ERM CVS, and a GHG Assessor and Technical Reviewer with more than ten years of experience in the CDM. Since joining ERM CVS Jonathan has worked as a Technical Reviewer or GHG Assessor on more than 30 CDM validations in Renewable Energy (scope 1), more than 10 CDM validations in Manufacturing Industries (scope 04), 6 CDM validations in Mining (scope 8), and 5 CDM validations in Waste Handling and Disposal (scope 13). Jonathan's previous work experience involved screening and due diligence of carbon projects, Project Design Document (PDD) development, quality assurance and technical review of CDM project documentation, the development of carbon monitoring plans, and management of carbon projects through the validation, registration and verification stages. Jonathan has completed the ERM CVS CDM training as well as the GHGMI Renewable Energy training and Gold Standard training. Jonathan holds a BA in Geography and an MSc in Environmental Change and Management from the University of Oxford.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	CME	Monitoring report 01, version 01 Monitoring report 01, version 02	05 July 2016 11 September 2016	CME
2	CME	ER calculation spreadsheet version 01 ER calculation spreadsheet version 02	05 July 2016 07 September 2016	CME
3	CME	Registered PoA-DD (including generic CPA-DD as part II) version 08.0	11 July 2014	CME
4	CME	Registered CPA-DD for CPA 1 version 6.0 Registered CPA-DD for CPA 2 version 9.0 Registered CPA-DD for CPA 3 version 9.0 Registered CPA-DD for CPA 4 version 9.0 Registered CPA-DD for CPA 5 version 9.0 Registered CPA-DD for CPA 6 version 9.0	All dated: 11 July 2014	CME

		Registered CPA-DD for CPA 7 version 9.0 Registered CPA-DD for CPA 8 version 9.0 Registered CPA-DD for CPA 9 version 9.0 Registered CPA-DD for CPA 10 version 9.0 Registered CPA-DD for CPA 11 version 9.0 Registered CPA-DD for CPA 12 version 9.0 Registered CPA-DD for CPA 13 version 9.0 Registered CPA-DD for CPA 14 version 9.0 Registered CPA-DD for CPA 15 version 9.0 Registered CPA-DD for CPA 16 version 9.0 Registered CPA-DD for CPA 17 version 9.0 Registered CPA-DD for CPA 18 version 9.0 Registered CPA-DD for CPA 19 version 9.0 Registered CPA-DD for CPA 20 version 9.0 Registered CPA-DD for CPA 21 version 9.0 Registered CPA-DD for CPA 22 version 9.0 Registered CPA-DD for CPA 23 version 9.0 Registered CPA-DD for CPA 24 version 9.0 Registered CPA-DD for CPA 25 version 9.0		
5	DOE	Approved PRC - Permanent Change to the monitoring plan and/or methodology	06 October 2012	ERMCVS
6	DOE	Approved PRC - Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	01 April 2016	ERMCVS
7	DOE	PoA Validation Report	30 July 2009	CME
8	DOE	PoA 1st Verification Report	09 November 2012	CME
9	CME	CPA group reliability check spreadsheet	05 July 2016	CME
10	CME	Monitoring survey questionnaire template	Undated (blank template)	CME
11	CME and SS	Survey forms and Surveyor Comments for a sample of households (copies of monitoring survey questionnaires cross checked by the verification team) Group 4 – HH ID 246 Group 3 – HH ID 356 Group 1 – HH ID 209 Group 3 – HH ID 8 Group 3 – HH ID 378 Group 2 – HH ID 228 Group 3 – HH ID 88	Feb – June 2016	CME
12	CME	CPA Distribution Records MEX02_Raw_Data.xlsx	Undated	CME

		MEX03_Raw_Data.xlsx MEX04_Raw_Data.xlsx MEX05_Raw_Data.xlsx MEX06_Raw_Data.xlsx MEX07_Raw_Data.xlsx MEX08_Raw_Data.xlsx MEX09_Raw_Data.xlsx MEX10_Raw_Data.xlsx MEX11_Raw_Data.xlsx MEX12_Raw_Data.xlsx MEX13_Raw_Data.xlsx MEX14_Raw_Data.xlsx MEX15_Raw_Data.xlsx MEX16_Raw_Data.xlsx MEX17_Raw_Data.xlsx MEX18_Raw_Data.xlsx MEX19_Raw_Data.xlsx MEX20_Raw_Data.xlsx MEX21_Raw_Data.xlsx MEX22_Raw_Data.xlsx MEX23_Raw_Data.xlsx MEX24_Raw_Data.xlsx MEX25_Raw_Data.xlsx		
13	CME & Govt.	Agreement between Cool NRG and Mexican Govt.	13 September 2012	CME
14	CME	Email from Cool NRG detailing Mexican Government Notarised document approval after incandescent bulb disposal Attachments: Escritura fin destruccion.pdf Escritura inicio destruccion.pdf	03 September 2016	CME
15	Sitrasa	Letter from waste management company Sitrasa detailing amount of waste recycled	Undated	CME
16	CME	Technical specification of the CFLs Cliché of Mexico Tender.pdf Pictures of the Markings: DSC01059.jpg, DSC01061.jpg, DSC01063.jpg and DSC01065.jpg Fide logo of Mexico tender 01.jpg	Undated	CME

		Fide logo of Mexico tender 02.jpg		
17	CME	Recycling guidance provided to Households	Undated	CME
18	Mexico Govt.	Official government data – SENER “Prospectiva del sector electrico 2005-2014”, “Prospectiva del sector electrico 2006-2015”, “Prospectiva del sector electrico 2007-2016”	2005-2016	CME
19	CME	Survey results spreadsheet	Undated	CME
20	CME	PRC – Revision of registered PoA monitoring plan	10 July 2012	CME
21	CME	Survey Classifications and Guidelines for Surveyors	Undated	CME
22	CME	9da617aa.JPG – Picture of a CFL exchange taking place between distributer and end user Campaign box PDF - CAJA FOCOS 020511 FINAL.pdf – Picture of a campaign box which holds 4 CFLs. These were given to each household when exchanging 4 ILBs at the distribution points.	Undated	CME
23	CME	File CL3: Survey Company selection criteria and Guidance provided to the surveyors by the CME	Undated	CME
24	Strategy Success & CME	INSTRUCTIVO TRABAJO DE CAMPO.pdf – Presentation and training material covered by Cool NRG and Strategy Success to their enumerators (Presentation to be used as Guidance during field work)	Undated	CME
25	Strategy Success & CME	Signed contract between Cool NRG and Strategy Success – detailing guidance provided by Cool NRG for the objectives of the survey	16 February 2016	CME
26	CME	PCCG sample size calculations	Undated	CME
27	CME	Random Selection of Households for Mexico Survey.docx - documentation detailing the process of sampling or selection of households for the monitoring survey	Undated	CME
28	Strategy Success	Survey database check by Strategy Success. File: Household Details by Group FINAL CHECK.xlsx	Undated	CME
29	CME	Distribution Locations.xlsx	Undated	CME
30	CME	Email communication between SEMARNAT officials and the CME	01 June 2016	CME
31	DOE	CPA Inclusion Reports	22 March 2013	CME
32	CME	Training presentation/notes by the CME to the distribution personnel in Chedraui/Soriana/Coppel, external personnel involved in operations, customer call centre personnel, other training providers involved in training roll-out across distribution outlets, distribution personnel and HR managers	Undated	CME

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

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

FAR ID	xx	**Section no.**		**Date:** DD/MM/YYYY
Description of FAR				
No FARs from validation or previous verification				
CME response				**Date:** DD/MM/YYYY
Documentation provided by the CME				
DOE assessment				**Date:** DD/MM/YYYY

Table 2. CL from this verification

CL ID	01	**Section no.**	H.2	**Date:** 25 August 2016
Description of CL				
CL 01 is raised for the CME to provide evidence of the checks carried out in the DMS to ensure that the CFLs corresponded with the number of ILBs exchanged at the time of the distribution.				
CME response				**Date:** 11/09/16
During the distribution project each exchange was recorded in the DMS at the location and time of the exchange. The required details, including the wattage of each of the 4 ILBs, were recorded in the DMS before the 4 CFLs were given to the householder. This data has been provided to the DOE for each CPA in the individual Raw_Data files. The 4 CFLs were all in one box so that there could not be any error in providing more or less than 4 CFLs for each exchange. An exchange would only occur if 4 ILBs were recorded in the DMS. To ensure that all of the ILBs that were exchanged had been recorded in the DMS the destruction/recycling process counted all of the collected ILBs. A final reconciliation confirmed that all ILBs had been collected and processed (please refer to CL 02).				
Documentation provided by the CME				
9da617aa.JPG, Campaign box PDF - CAJA FOCOS 020511 FINAL.pdf and MEX02-25_Raw_Data.xlsx files				
DOE assessment				**Date:** 26 September 2016
The explanation provided by the CME is found to be satisfactory. ERM CVS has reviewed the CPA distribution records as evidenced by MEX02-25_Raw_Data.xlsx files/12/ and confirms that each distribution record (for each household) includes the number of ILBs exchanged and their power or wattage, which corresponded to the number of CFLs distributed per household. Therefore, the DMS or the CPA distribution records were used by the CME to confirm that each household exchanged the 4 ILBs in return for a project campaign box containing 4 projects CFLs/12/22/. A local notary conducted independent verification of the scrapping of ILBs collected/14/ during the distribution process – ERM CVS reviewed the documentation and confirmed that the number of CFLs distributed equalled the number of ILBs collected/12/14/. CL 01 is closed.				

CL ID	02	**Section no.**	H.2	**Date:** 25 August 2016
Description of CL				
As per the MR, the CME used the services of a local environmental audit firm to conduct independent verification of the scrapping of incandescent light bulbs collected during the distribution process. CL 02 is raised for the CME to share documentation with reference to this process.				
CME response				**Date:** 11/09/16

The scrapping of CFLs was carried out by an independent waste management firm SITRASA (Sistemas de Tratamiento Ambiental, S.A.) (http://www.sitrasa.com/SITRASA/Bienvenido_a_SITRASA.html.
Each destruction was recorded by SITRASA and reported to the Mexican Government. (*ActaDisposición)*
The measurement of the number of ILBs and the destruction was verified by the notary, Luz María Vazquez Solis. The notarised documents are:

1. The process for recording the number of ILBs destroyed (*Escritura inicio destruccion.pdf)* and
2. The final number of ILBs destroyed. (Escritura fin destruccion.pdf)

Documentation provided by the CME

ActaDisposiciónJunio 12 001.jpg and notarised copies of Escritura inicio destruccion.pdf and Escritura fin destruccion.pdf

DOE assessment	**Date:** 26 September 2016

The CME has clarified that the independent entity is actually the Government notary that oversaw the destruction of the ILBs collected by the independent waste management firm Sitrasa/15/. The monitoring report has been revised to clarify the wording and accurately reflect that the Govt. notary was the independent verifying body.

ERM CVS has validated that the Government notary documented and independently verified the scrapping of replaced equipment and issued a notification email to the CME stating that the scrapping of the ILBs was performed in accordance with the Mexico government regulations/14/. ERM CVS also reviewed the documentation related to the scrapping of the ILBs/14/ and confirms that they appropriately detail the process of destruction, in line with the applicable methodology. Furthermore, ERM CVS confirmed that the total number of project CFLs exchanged /02/12/ corresponded with the total number of ILBs collected and destroyed /14/.

CL 02 is closed.

CL ID	03	**Section no.**	H.2	**Date:** 25 August 2016

Description of CL

CL 03 is raised for the CME to provide evidence of competency selection and formal training provided to the surveyors (training provided by the CME to surveyors as well as internal training carried out by Strategy Success).

CME response	**Date:** 11/09/16

CME has provided evidence to the DOE of competency selection and formal training provided to the surveyors (training provided by the CME to Strategy Success as well as internal training carried out by Strategy Success of surveyors).

Documentation provided by the CME

Signed contract between CME and Strategy Success (file name: signed contract.pdf), Training carried out by Strategy Success (file name: Instructivo para trabajo de campo), Survey company selection process and training provided by the CME to Strategy Success (file name: CL3.docx)

DOE assessment	**Date:** 26 September 2016

ERM CVS has reviewed the signed contract between the CME and Strategy Success/24/ and the Survey company selection process and training provided by CME to Strategy Success/23/ and confirms that the CME has provided evidence of competency selection and training with reference to surveyors. The survey company was selected on the basis of their experience in national field surveys and presence of enumerators spread across the country. Further considerations such as price and rate of response to queries were also taken into consideration. ERM CVS also reviewed that the CME has provided guidance on how the enumerators are to carry out surveys for the surveys to be considered complete and valid (e.g. guidance details that the enumerators check whether the CFLs have the required markings that are indicative of project CFLs and are still operational by checking whether they work and whether they are in use, that the household responses are to be recorded for each question, that Strategy Success is to detail their methodology and results in a report etc.).

Furthermore, a face to face training was provided by the CME in conjunction with Strategy Success /24/ to the enumerators providing guidance on how the surveys are to be carried out, to approach households, to distinguish between the project CFLs from other CFLs, to ascertain whether a project CFL is operational and in use – and to take pictures of the bulbs for their records, to provide progress status updates on surveys etc.

Evidence is deemed sufficient. CL 03 is closed.

CL ID	04	**Section no.**	I.1	**Date:** 25 August 2016
Description of CL				
The registered CPA-DD for CPA 23 makes reference to 968,332 as well as 972,132 number of CFL bulb distributions for the CPA. CME to clarify.				
CME response				**Date:** 11/09/16
The correct number of CFLs distributed under CPA 23 is 972,132 as outlined in section D.5.2, D.5.3, and in Appendix 4 of CPA-DD 23. The same value has been used to estimate the ex-ante ER as well as actual ER for this monitoring period. 968,332 CFLs that is listed under D.6.1. of the CPA-DD 23 is a typographical error.				
Documentation provided by the CME				
N/A				
DOE assessment				**Date:** 26 September 2016
ERM CVS has reviewed the CPA distribution records as evidenced by MEX23_Raw_Data.xlsx file/12/ which confirms that 972,132 were distributed under CPA 23. The CPA-DD for CPA 23 has a typographical error and since the CME cannot easily update the CPA-DD this explanation is deemed sufficient. CL 04 is closed.				

CL ID	05	**Section no.**	I.1	**Date:** 25 August 2016
Description of CL				
The description in the monitoring report regarding the distribution locations is insufficiently clear. Section A.1 of the monitoring report does not present the locations where project CFLs have been distributed during this monitoring period for all included CPAs.				
CME response				**Date:** 11/09/16
CME has expanded the information on distribution locations in Section A.1 of the monitoring report. Please refer to the Distribution Locations file for a full list of the locations where CFLs were distributed under CPA 2535-0002 to CPA 2535-0025 in the Mex_Raw_Data spread sheets submitted to the DOE.				
Documentation provided by the CME				
Revised monitoring report_V02. Distribution Locations.xlsx				
DOE assessment				**Date:** 26 September 2016

ERM CVS has reviewed the distribution locations file /29/ and cross checked against the CPA distribution database /12/ to confirm the total number of municipalities where the project CFLs have been distributed under the current monitoring period for CPAs 02-25. The description in the revised monitoring report now accurately presents the locations where the CFLs have been distributed.

CL 05 is closed.

CL ID	06	**Section no.**	I.3	**Date:** 25 August 2016
Description of CL				
CL 06 is raised to request the CME to present the aggregate energy savings of each CPA in the monitoring report.				
CME response				**Date:** 11/09/16
The CME has provided the aggregate energy savings of each CPA in section H2 of the monitoring report.				
Documentation provided by the CME				
Revised Monitoring Report _ V02				
DOE assessment				**Date:** 26 September 2016
ERM CVS has reviewed the updated monitoring report, section H.2, and confirms that the aggregate energy savings of each CPA has been presented - the CME has clarified that each CPA has saved less than 60 GWh of electricity. The calculations have also been cross checked by way of reviewing the emission reduction calculation spreadsheet/02/. CL 06 is closed.				

CL ID	07	**Section no.**	I.4.3	**Date:** 25 August 2016
Description of CL				
CL 07 is raised for the CME to share the sample size calculation spreadsheets for the PCCG for verification. CME to further clarify whether sampling was conducted separately for each block of CPAs or a larger sample was selected covering households from all CPA blocks.				
CME response				**Date:** 11/09/16
PCCG sample size calculation spread sheet has been submitted to the DOE. Sampling was conducted separately for each block of CPAs. Further details of the sampling process are included in the document Random Selection of Households for Mexico Survey.docx				
Documentation provided by the CME				
PCCG sample size calculation spread sheet. Sample Size Calculation_070916.xlsx, Random Selection of Households for Mexico Survey.docx				
DOE assessment				**Date:** 26 September 2016
ERM CVS confirmed that simple random sampling approach was applied to each block of CPAs using the list of all participating households for a given block of CPAs as the sampling frame. This was confirmed by reviewing the PCCG sample size calculations/26/ and other supporting documentation detailing the process of sampling or selection of households for the monitoring survey/27/. The approach used by the CME is in line with the sampling plan. For details of the survey sampling please refer to section I.4.3 of the FVR. CL 07 is closed.				

CL ID	08	**Section no.**	Appendix 6	**Date:** 25 August 2016
Description of CL				
The CME is requested to provide supporting evidence for the value of the parameters pk and pi.				
CME response				**Date:** 11/09/16

CME has provided the procedure that was applied to calculate values for pi for all CPAs in the Mex_Raw_Data spread sheets. Please refer to the second tab of the spread sheets that calculates pi value for all CPAs. These values were also validated by the validating DOE at the time of inclusion of the CPAs.

Regarding pk as stated in Section A.5 of CPA-DD 002 to CPA-DD 0025, CFLs of 23 Watt were distributed under all CPAs. The inclusion of CPAs took place after the distribution of CFLs and actual CFL wattage was reported in the CPA-DD. The validating DOE validated this value at the time of inclusion of the CPAs. As evidence, CME has submitted a scanned copy of the CFL pack from the CFL distribution program that shows the CFL wattage of the CFLs.

Documentation provided by the CME

24 separate calculation spread sheets that estimates value for pi pertaining to CPA002 to CPA 025. Please refer to the second tab of each spread sheet. Mex_Raw_Data.xlsx
Photograph of Project CFL pack showing the CFL Wattage. Campaign box PDF - CAJA FOCOS 020511 FINAL.pdf

DOE assessment	**Date:** 26 September 2016

Parameter pi: ERM CVS notes that the inclusion of CPAs 02-25 to the PoA (2013) took place after the distribution of project CFLs (2011-2012). The power or wattage of the ILBs exchanged at the distribution points was recorded by the CME and validated by the validating DOE at the time of inclusion of the CPAs /31/. Furthermore, ERM CVS has reviewed the training presentation by the CME (provided to the distribution personnel in Chedraui/Soriana/Coppel, external personnel involved in operations, customer call centre personnel, other training providers involved in training roll-out across distribution outlets etc.), and confirmed that the personnel were trained on the project CFL distribution operations, including how to accurately observe and record the wattage of the exchanged ILBs into the DMS at the time of the exchange /32/.

ERM CVS has reviewed the CPA distribution database (extracted from the DMS)/12/ for each CPA and checked that the weighted average power of incandescent bulbs “i” replaced during the exchange process was recorded and used correctly for the ER calculations as evidenced by the ER calculations spreadsheet /02/.

Parameter pk: ERM CVS has reviewed the technical specifications of the project CFLs /16/ and the CFL pack /22/ to confirm the power or wattage of the project CFLs aimed for distribution under the PoA. During the site visit, ERM CVS was able to visually confirm that the CFLs installed correspond to the type described in the manufacturers specifications, as all of the end users surveyed as part of the verification site visit possessed 23W project CFLs with the PoA specific ‘Luz Sustentable’ markings /16/. A review of the ER calculations spreadsheet /02/ revealed that the wattage of project CFLs is accurately presented.

CL 08 is closed.

Table 3. CAR from this verification

CAR ID	01	**Section no.**	Appendix 6	**Date:** 25 August 2016

Description of CAR

CAR 01 is raised for the CME to review the survey results database including conducting a review whether there are no further discrepancies between the survey forms, as well as surveyor notes, for all surveys conducted to capture any similar discrepancies between the survey records and the database (of survey results).

The survey database is also currently missing the date of the surveys. CME is requested to revise.

CME response	**Date:** 11/09/16

The survey company Strategy Success has checked the results recorded on the survey forms against the results recorded in the results report. Other than the error found during the site visit for household 2-228,no other errors were found. The review has been completed for all 416 surveys. The date each survey was conducted has been added to the file.

Documentation provided by the CME

The file Household Details by Group FINAL CHECK.xlsx

DOE assessment	**Date:** 26 September 2016

ERM CVS has reviewed the analysis Strategy Success has performed on the survey database against surveyor notes and survey forms to check for discrepancies and the cross checks performed by the CME on this analysis/28/. It was noted that no errors, other than the one identified during the site visit (i.e. household 2-228), were found. The one noted case of over-estimation related discrepancy is therefore deemed an anomaly, rather than a systemic issue. Furthermore, since anecdotal evidence suggested that the trend from the survey was to be conservative and under-report project CFL usage (during the site visit ERM CVS found additional operational project CFLs in 11 of the 35 households visited), no further action is deemed necessary. The results of the survey are deemed sufficiently credible.

Furthermore, ERM CVS has confirmed that the dates of the survey have now been added to the survey database /28/ which confirms the information from the site visit/C.2/ that the surveys were conducted during February to June 2016.

CAR 01 is closed.

Table 4. FAR from this verification

FAR ID	01	**Section No.**	I.4.3	**Date:** 25 August 2016
Description of FAR				
During the monitoring process, CME representatives accompanied Strategy Success on a few randomly selected surveys to confirm that the surveys were being conducted in line with instructions. However, this level of QA/QC is found to be inadequate. FAR 01 is raised for future verifications in order for the CME to perform more rigorous QA/QC checks on monitoring surveys and results.				
CME response				**Date:** 11/09/16
For future surveys the CME will include three levels of spot checks so as to improve QA/QC: 1. Additional field checks will be conducted by the CME to ensure that surveyors are strictly adhering to the instructions. 2. Phone call checks of field surveyors understanding of the surveying instructions. 3. Additional desktop checks of completed survey documents and survey results.				

FAR ID	02	**Section No.**	I.4.3	**Date:** 25 August 2016
Description of FAR				
During the site visit, ERM CVS noted that the surveyor notes provided some additional information which enabled the head office to record a different number of operational CFLs in comparison with what was noted in the survey form e.g. Group 3 – HH ID 88: survey form had recorded 1 project CFL was seen but the surveyor notes indicated that the bulb was no longer working despite being in a fitting. Therefore the head office recorded 0 operational project CFLs in the household (which is appropriate and confirms that the notes were used as part of survey data processing). Since surveyor notes provided additional explanation of the observations during the monitoring survey, and helped bridge gaps between the survey form and information recorded by Strategy Success in the excel spreadsheet capturing monitoring results, ERM CVS notes that the surveyor notes should be captured directly on the survey form. For future verifications, in order for all relevant information to be captured in one place, CME to ensure all surveyor notes are captured in the survey form. FAR 02 is raised.				
CME response				**Date:** 11/09/16
The survey company will be required to record all details for each survey electronically using an electronic tablet. No survey information will be recorded on paper forms. This will avoid potential data recording errors. The information recorded in the electronic tablet will be transmitted to a central database. In order for additional comments to be recorded, a comments section will be included at the end of the electronic survey form.				

Appendix 5. Household Interview List

The following table lists the households visited or telephoned during the verification site visit.

Number	Date	End User	CPA Group/Block	Household ID	Mode of Interview
01	01/08/2016	Contreras Victor Manuel	3	263	Face to face
02		Maria Estella Gomez De	2	228	Face to face
03		Maria Del Carmen	3	150	Face to face
04		Velazquez Juan P	4	9	Face to face
05		Ortega Higinia	3	394	Face to face
06		Paul Portugal	2	230	Face to face
07		Cruz Parra Miguel A	4	231	Face to face
08	02/08/2016	Sergio Maldonado	4	344	Face to face
09		Miranda Margarita	3	356	Face to face
10		Augustin Cabrera Olivier	3	477	Face to face
11		Rene Castillo Jose	2	24	Face to face
12		Daniel Martinez	4	247	Face to face
13	03/08/2016	Rodriguex C Gilberto	3	189	Face to face
14		Salazar Alejandro	2	39	Telephone
15		Ramirez J Manuel	1	364	Telephone
16		Suarez Venegas Diana	1	139	Face to face
17		Maria Gudalupe	1	209	Telephone
18		Sergio Camaro	1	374	Face to face
19		Garcia Regina	2	205	Face to face
20		Lidia Cisneros	2	15	Telephone
21		Yolanda Trejo	2	229	Telephone
22		Juan Antonio	2	320	Face to face
23		Manual Jose	1	116	Face to face
24		Nieto Bautista Ismael	1	35	Face to face
25		Gamez M Gabriel	1	60	Telephone
26		Antonio Perez	1	41	Face to face
27	04/08/2016	Antonia Gonsales	2	410	Face to face
28		Lucas Ramirez	3	22	Face to face
29		Kauffman Perez Guilremo	4	246	Face to face
30		Tome Herera Sara	1	138	Face to face
31		Barrance Duran Miguel	2	397	Face to face
32		Juan Carlos Charlie	3	35	Telephone
33		Hasinto Gonsales	1	129	Face to face
34		Vargas Flores Margarita	3	352	Face to face
35		Roberto Casida	4	72	Telephone
36		Sanchez Cleotide	2	317	Telephone
37		Audelia Glez	4	626	Telephone
38		Margharita Martinez	1	132	Telephone
39		Perez De M Gudelia	3	88	Face to face
40	05/08/2016	Guadalupe Campuzan	4	280	Face to face
41		Rosa Banez	4	104	Telephone
42		Bautista Manuel	3	8	Face to face
43		Maria Delacruz Perez	2	96	Face to face
44		Juan Molina	4	450	Face to face
45		Rojehiho Agrilara	1	289	Telephone
46		Gloria Carbajo	2	61	Telephone
47	06/08/2016	Sanchez R Ernesto	4	206	Face to face
48		Lopez Elizabeth	4	7	Face to face
49		Francisca	3	407	Telephone
50		Jorge Luis Peregrino	2	375	Telephone
51		Rodolfo Arias	2	452	Telephone
52		Patricia Rosa	4	18	Face to face

Appendix 6. Verification of monitored parameters

The verification findings for the monitoring of each parameter are set out below

Data / Parameter:	n_k		
Data unit:	-		
Description:	Number of operational CFLs		
Measured/calculated/ default	Calculated		
Compliance question	**Verification findings (including verification activities undertaken and justification/substantiation of information, data and evidence)**	**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Is the parameter monitored in accordance with the monitoring plan and are the QA/QC procedures appropriately applied? Does the monitoring report correctly state all relevant information and data relating to the monitoring of parameters during the monitoring period?	In accordance with the registered PoA-DD and CPA-DDs, parameter n_k is calculated based on the number of project CFLs distributed, adjusted for the rate of CFL operation (PCCG survey results). *Monitoring of Project CFL distributions:* A distribution record has been maintained for each CPA to record the number of project CFLs that have been distributed in exchange for equivalent number of incandescent bulbs. All distributions for CPAs 02-25 took place between July 2011 and June 2012 /12/. Please refer to the section H.2 for further details of how the CFL distributions were verified. *Monitoring of Project CFL operation (PCCG survey):* In order to determine the number of project CFLs operating, the PoA monitored the proportion of CFLs that are in use (functioning / operating). The surveys were conducted during the monitoring period. Please refer to section H.2 and I.4.3 for further details of how the survey was verified. *Sample size calculations*: The sample size calculation for each CPA block was validated at the validation stage. *Actual sample size*: Please refer to section H.2 and I.4.3 for further details of how the survey was verified. *Sample selection*: Please refer to CL 07. CL 07 is closed. Please refer to Appendix 4 for further details. *Reliability calculation*: A reliability check calculation was presented in the monitoring report in line with the Guideline on Sampling and surveys for CDM project activities and programmes of activities, Appendix 4. ERM CVS has checked the spreadsheet showing the results of the survey and reliability check /09/. The relative precision achieved is within the required 10% precision level for all CPA groups. *Survey preparation, implementation and QA/QA*: Please refer to section H.2 and I.4.3 for further details of how the survey was verified.	~~CL 07~~ ~~CAR 01~~	OK

	Verification of survey results: ERM CVS reviewed samples of the filled in monitoring survey questionnaires, surveyor notes /11/ and the data spreadsheets for CPAs 02-25 /19/ and did not find any inconsistencies. ERM CVS validated that the monitoring surveys were implemented in a way that minimises error and bias. ERM CVS interviewed a sample of 12 households for Block 1, 15 households for Block 2, 12 households for Block 3 and 13 households for Block 4, for the purposes of acceptance sampling (overall total of 52 households). The same survey questions were posed, and the results were compared with the results of the CMEs survey at the same households. Any under-reporting cases in the monitoring survey were ignored as they would be deemed conservative. If there were any cases of over-reporting in the monitoring survey, further questions were asked to understand whether any CFLs stopped working between the time the monitoring survey was conducted and the time the verification survey was conducted, as there was a time gap of two to seven months between the two surveys. If the differences were not explainable, a discrepancy is noted. Overall during the verification survey, 2 discrepancies were found. • Group 2 – HH ID 228: The monitoring survey noted 4 operational CFLs but during the verification survey, ERM CVS found all 4 CFLs not in use. On further investigation, it was found that the survey form correctly recorded that all 4 CFLs were not in use – however, the survey results excel spreadsheet /19/ recorded them as operational, indicating an error in data transfer between survey forms and the database, which was not picked up by the QA/QC process. CAR 01 is raised for the CME to review the database including conducting a review whether there are no further discrepancies between the survey forms, surveyor notes, /11/ and the database /19/. CAR 01 is closed. Please refer to Appendix 4 for further details. • Group 1 – HH ID 356: The monitoring survey noted 1 operational CFL but during the verification survey it was noted that the surveyor mistook a regular CFL for a project CFL. ERM CVS reviewed the training and instructions given and can confirm that these are clear and prescriptive requiring the surveyor to check that the project CFL is operational and to take it out and confirm that the CFL has the special marking of the project. Therefore this error is considered a surveyor's error. ERM CVS or CME's internal checks did not find any other similar instances. Since (a) two discrepancies were allowed as per the DOE sampling methodology under acceptance sampling, and (b) the DOE survey found that the survey protocol and instructions given meant the surveyors were taking a cautious approach and were in a number of cases under-reporting the CFL usage, the CMEs results can be accepted as conservative. *Survey results application* ERM CVS has reviewed the survey results and confirmed that they have been accurately presented /19/. The percentage of operating CFLs for each block of CPAs is listed below /19/: • Group 1: 14.318% operating project CFLs (63 operational CFLs out of 440 sampled) • Group 2: 16.832% operating project CFLs (68 operational		

CFLs out of 404 sampled)

- Group 3: 23.301% operating project CFLs (96 operational CFLs out of 412 sampled)
- Group 4: 12.745% operating project CFLs (52 operational CFLs out of 408 sampled)

The survey results from each block of CPAs are applied to the applicable CPA depending on which group the respective CPA belongs to. If a CPA is a part of more than one group (i.e. CPA 0006, CPA 0016 and CPA 0024), the more conservative value is applied to it /12/09/. ERM CVS has checked the below calculations and confirmed that they are appropriately applied:

CPAs	% of operating CFLs	Justification for applied value
CPA 2	14.318%	CPA2 is part of Block 1 CPA
CPA 3	14.318%	CPA3 is part of Block 1 CPA
CPA 4	14.318%	CPA4 is part of Block 1 CPA
CPA 5	14.318%	CPA5 is part of Block 1 CPA
CPA 6	14.318%	CPA6 is part of both Block 1 and Block 2 due to 3 months cut-off date rule applied in forming the CPA Blocks. To be conservative, % of operating CFLs value of Block 1 is applied for CPA 6.
CPA 7	16.832%	CPA7 is part of Block 2 CPA
CPA 8	16.832%	CPA8 is part of Block 2 CPA
CPA 9	16.832%	CPA9 is part of Block 2 CPA
CPA 10	16.832%	CPA10 is part of Block 2 CPA
CPA 11	16.832%	CPA11 is part of Block 2 CPA
CPA 12	16.832%	CPA12 is part of Block 2 CPA
CPA 13	16.832%	CPA13 is part of Block 2 CPA
CPA 14	16.832%	CPA14 is part of Block 2 CPA
CPA 15	16.832%	CPA15 is part of Block 2 CPA
CPA 16	16.832%	CPA16 is part of both Block 2 and Block 3 due to 3 months cut-off date rule applied in forming the CPA Blocks. To be conservative, % of operating CFLs value of Block 2 is applied for CPA 16.
CPA 17	23.301%	CPA 17 is part of Block 3 CPA
CPA 18	23.301%	CPA 18 is part of Block 3 CPA
CPA 19	23.301%	CPA 19 is part of Block 3 CPA
CPA 20	23.301%	CPA 20 is part of Block 3 CPA

CPA 21	23.301%	CPA 21 is part of Block 3 CPA	
CPA 22	23.301%	CPA 22 is part of Block 3 CPA	
CPA 23	23.301%	CPA 23 is part of Block 3 CPA	
CPA 24	12.745%	CPA 24 is a part of both Block 3 and Block 4 due to 3 months cut-off date rule applied in forming the CPA Blocks. To be conservative, % of operating CFLs value of Block 4 is applied for CPA 24	
CPA 25	12.745%	CPA 25 is part of Block 4 CPA	

The total number of operational CFLs per CPA is then obtained by multiplying the number of distributed project CFLs per CPA with the % of operational CFLs applicable for that CPA (based on the table above).

Conclusion	ERM CVS confirmed that • The parameter has been monitored in line with the approved deviation applicable to this monitoring period. • The monitoring results have been recorded consistently as per the monitoring plan and approved deviation.

Data / Parameter:	n_i		
Data unit:	-		
Description:	Number of incandescent bulbs operational in baseline scenario		
Measured/calculated/ default	Calculated		
Compliance question	**Verification findings (including verification activities undertaken and justification/substantiation of information, data and evidence)**	**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Is the parameter monitored in accordance with the monitoring plan and are the QA/QC procedures appropriately applied? Does the monitoring report correctly state all relevant information and data relating to the monitoring of parameters during the monitoring period?	Incandescent bulbs are exchanged for project CFLs under the PoA, therefore the monitoring of this parameter is identical to that of n_k - because the number of project CFLs operational in the project scenario represent the number of incandescent displaced in the project scenario (or operational during the baseline scenario). The value of n_k is used as proxy for the value of n_i. *Monitoring of incandescent bulb exchange*: Please see section H.2 for details of how this was verified. *Monitoring of incandescent bulb operation in baseline scenario, sample size calculations, actual sample size, sample selection, survey preparation, implementation and QA/QC:* The monitoring of incandescent bulb operation in the baseline scenario is the same as the monitoring of the operation of project CFLs in the project scenario (value of n_k is used as proxy for the value of n_i) - verified above. Please see above for details of how the survey was verified. CL 07 and CAR 01 were closed. Please refer to Appendix 4 for further details. *Verification of survey results*:	~~CL 07~~ ~~CAR 01~~	OK

	Please see above for details of how the survey was verified.		
Conclusion	ERM CVS confirmed that • The parameter has been monitored in line with the approved deviation applicable to this monitoring period. • The monitoring results have been recorded consistently as per the monitoring plan and approved deviation.		

Data / Parameter:	p_i		
Data unit:	Watts		
Description:	The weighted average power of incandescent bulbs "i" replaced during the exchange process.		
Measured/calculated/ default	Calculated		
Compliance question	**Verification findings (including verification activities undertaken and justification/substantiation of information, data and evidence)**	**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Is the parameter monitored in accordance with the monitoring plan and are the QA/QC procedures appropriately applied? Does the monitoring report correctly state all relevant information and data relating to the monitoring of parameters during the monitoring period?	The CME is requested to provide supporting evidence for the value of the parameter. Please refer to CL 08. ERM CVS notes that the inclusion of CPAs 02-25 to the PoA (2013) took place after the distribution of project CFLs (2011-2012). The power or wattage of the ILBs exchanged at the distribution points was recorded by the CME and validated by the validating DOE at the time of inclusion of the CPAs /31/. Furthermore, ERM CVS has reviewed the training presentation by the CME (provided to the distribution personnel in Chedraui/Soriana/Coppel, external personnel involved in operations, customer call centre personnel, other training providers involved in training roll-out across distribution outlets etc.), and confirmed that the personnel were trained on the project CFL distribution operations, including how to accurately observe and record the wattage of the exchanged ILBs into the DMS at the time of the exchange /32/. ERM CVS has reviewed the CPA distribution database (extracted from the DMS)/12/ for each CPA and checked that the weighted average power of incandescent bulbs "i" replaced during the exchange process was recorded and used correctly for the ER calculations as evidenced by the ER calculations spreadsheet /02/. CL 08 is therefore closed.	~~CL 08~~	OK
Conclusion	ERM CVS confirmed that • The parameter has been monitored appropriately, in accordance with the monitoring plan and methodology. • The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan.		

Data / Parameter:	p_k	
Data unit:	Watts	
Description:	The weighted average power of the CFLs "k" distributed.	
Measured/calculated/ default	Calculated	

Compliance question	Verification findings (including verification activities undertaken and justification/substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
Is the parameter monitored in accordance with the monitoring plan and are the QA/QC procedures appropriately applied? Does the monitoring report correctly state all relevant information and data relating to the monitoring of parameters during the monitoring period?	The CME is requested to provide supporting evidence for the value of the parameter. Please refer to CL 08. ERM CVS has reviewed the technical specifications of the project CFLs /16/ and the CFL pack /22/ to confirm the power or wattage of the project CFLs aimed for distribution under the PoA. During the site visit, ERM CVS was able to visually confirm that the CFLs installed correspond to the type described in the manufacturers specifications, as all of the end users surveyed as part of the verification site visit possessed 23W project CFLs with the PoA specific 'Luz Sustentable' markings /16/. A review of the ER calculations spreadsheet /02/ revealed that the wattage of project CFLs is accurately presented. CL 08 is closed.	~~CL 08~~	OK
Conclusion	ERM CVS confirmed that • The parameter has been monitored appropriately, in accordance with the monitoring plan and methodology. • The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan.		

Data / Parameter:	o_k		
Data unit:	Hours		
Description:	The average annual operating hours of CFLs "k" distributed.		
Measured/calculated/ default	Calculated		
Compliance question	**Verification findings (including verification activities undertaken and justification/substantiation of information, data and evidence)**	**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Is the parameter monitored in accordance with the monitoring plan and are the QA/QC procedures appropriately applied? Does the monitoring report correctly state all relevant information and data relating to the monitoring of parameters during the monitoring period?	The parameter has been represented in accordance with the registered PoA-DD and CPA-DDs /03/04/.	OK	OK
Conclusion	ERM CVS confirmed that • The parameter has been monitored appropriately, in accordance with the monitoring plan and methodology. • The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan.		

Data / Parameter:	CFL collection and recycling scheme.		
Data unit:	N/A		
Description:	The coordinating entity has worked with the government and non-government stakeholders to assist in the establishment of a national CFL collection and recycling scheme where possible.		
Measured/calculated/ default	N/A		
Compliance question	**Verification findings (including verification activities undertaken and justification/substantiation of information, data and evidence)**	**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Is the parameter monitored in accordance with the monitoring plan and are the QA/QC procedures appropriately applied? Does the monitoring report correctly state all relevant information and data relating to the monitoring of parameters during the monitoring period?	The CME has presented a description on the status of the parameter in the monitoring report. The Mexican Government does not currently have a national CFL collection and recycling scheme. However, the SEMARNAT department (Secretariat of Environment and Natural Resources) under the Mexico Government treats waste from used CFLs as 'hazardous waste' and the Government applies its integrated waste management laws for its treatment /30/. The CME has however engaged with a small number of households involved in the project (specifically those who participated in the functionality survey) and provided more information on CFL recycling to them. ERM CVS was able to observe pamphlets or guidance documentation on CFL recycling given to households during the monitoring survey /17/ during the verification site visit. The guidelines detail the benefits of recycling, including reuse of material.	OK	OK
Conclusion	ERM CVS confirmed that • The parameter has been monitored appropriately, in accordance with the monitoring plan and methodology. • The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan.		

Conclusion

ERM CVS confirmed that the monitoring of all relevant parameters has been carried out in accordance with the monitoring plan /04/. It is confirmed that data acquisition process, data transferring process, archiving process and reporting process occur as required by the monitoring plan. The final monitoring report provides an accurate description of the monitoring for all parameters throughout the monitoring period.

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Document information

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