



Monitoring report form for CDM programme of activities
(version 01.0)

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

MONITORING REPORT

Title of the programme of activities (PoA)	CUIDEMOS Mexico (Campana De Uso Inteligente 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 monitoring report	Version 08	
Coordinating/managing entity (CME)	Cool NRG International Pty Ltd	
Version number of this monitoring report	02	
Completion date of this monitoring report	11/09/2016	
Monitoring period number and dates covered by this monitoring report	Monitoring Period: 02 Dates Covered by this monitoring Report: 01/12/2010 to 31/03/2016 (inclusive of last day of the monitoring period)	
Monitoring report number for this monitoring period	01	
Host Party(ies)	Host Party(ies) of the PoA	Is this a host Party to a specific-case CPA covered in this monitoring report?(yes/no)
	Mexico	Yes
Sectoral scope(s)	3 : Energy demand	
Selected methodology(ies)	AMS-II.C. ver. 9 - Demand-side energy efficiency activities for specific technologies	
Selected standardized baseline(s)	N/A	
Total amount of GHG emission reductions or net GHG removals by sinks for all specific-case CPAs in the PoA covered in this monitoring report	GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012	GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards
	0	223,989

PART I - Programme of activities

SECTION A. Description of PoA

A.1. Brief description of the PoA

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

The goal of the PoA is to transform the energy efficiency of Mexico's residential lighting stock by distributing up to 30 million compact fluorescent lamps (CFLs) to households. By doing so, the program will abate greenhouse gas emissions through avoided electricity usage, significantly reduce national electricity demand and stress on energy infrastructure, and save individual households money on their electricity bills.

CPAs under the PoA involve the distribution of free energy efficient light bulbs (Compact Fluorescent Lamps or "CFLs") which were available to all households across Mexico. CFLs were made available for exchange for an equivalent number of incandescent bulbs (ILBs) at distribution outlets within the project area covered by the CPAs. The CFL exchange occurred in the outlets of distribution partners across Mexico as well as distributed via mobile units. All CPAs under the PoA were implemented within the geographical boundary of Mexico. In this monitoring period, CPA 2535-0002 to CPA 2535-0025 distributed CFLs to the households in municipalities across Mexico. The table below outlines the number of municipalities where CFLs were distributed. The names of municipalities under each CPA have been submitted to the DOE.

CPA No.	Number of Municipalities
2535-0002	324
2535-0003	324
2535-0004	321
2535-0005	321
2535-0006	344
2535-0007	337
2535-0008	344
2535-0009	361
2535-0010	356
2535-0011	369
2535-0012	387
2535-0013	380
2535-0014	395
2535-0015	417
2535-0016	436
2535-0017	439
2535-0018	454
2535-0019	451
2535-0020	441
2535-0021	465
2535-0022	419
2535-0023	427
2535-0024	527
2535-0025	529

A.1.1. Generic CPA(s)

Title, identification/reference number and/or version number of the generic CPA(s) of the PoA	Sectoral scope(s)	Applied methodology(ies) or combination of methodologies and/or standardized baseline(s)
Version number of the generic CPAs of the PoA: 08	3 : Energy demand	AMS-II.C. ver. 9 - Demand-side energy efficiency activities for specific technologies Tool to calculate the emission factor for an electricity system, version 01

A.1.2. Specific-case CPA(s) covered in this monitoring report

Reference number of the specific-case CPA included in the PoA as of the end of this monitoring period	Title, identification/reference number and version number of the generic CPA to which the specific-case CPA applies	Crediting period dates of the specific-case CPA	Is this specific-case CPA covered in this monitoring report? (yes/no)
2535-0002	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0003	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0004	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0005	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0006	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0007	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0008	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0009	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0010	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes

2535-0011	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0012	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0013	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0014	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0015	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0016	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0017	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0018	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0019	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0020	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0021	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0022	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0023	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0024	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes
2535-0025	Version number of the generic CPA of the PoA: 08	22 May 2013 - 21 May 2023	Yes

A.2. Contact information of the coordinating/managing entity (CME) and/or responsible persons(s)/entity(ies)

Anil Bhatta

Carbon & Clean Energy Solutions Pty Ltd

anil@c-ces.com

Carbon & Clean Energy Solutions Pty Ltd is not the CME of the PoA

SECTION B. Implementation of PoA**B.1. Implementation of the management system of the PoA**

>> The operational and management arrangements established by the coordinating/managing entity for the implementation of the PoA includes:

- (i) A record keeping system for each CPA under the PoA,
- (ii) A system/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as a CDM project activity or as a CPA of another PoA,
- (iii) The SSC-CPA included in the PoA is not a de-bundled component of another CDM programme activity (CPA) or CDM project activity.
- (iv) The provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA.

The proposed PoA involves a range of operational activities in order to effectively implement and manage each SSC-CPA. The coordinating entity has divided these operations into five broad categories and has defined the management responsibilities for each as detailed in the table below:

Operational Category	Management Responsibilities & Arrangements
Product Supply	<ul style="list-style-type: none"> • Maintain existing relationships with suppliers • Ensure timely production and supply of CFLs for each SSC-CPA
Transport & Storage Logistics	<ul style="list-style-type: none"> • Arrange transport of CFLs from supply partner • Arrange storage prior to distribution • Delivery of CFLs to distribution hubs
Distribution to Households	<ul style="list-style-type: none"> • Management of distribution points; stock; customer transactions and staff • Household data collection
Baseline Technology	<ul style="list-style-type: none"> • Collection of baseline technology from distribution hubs • Undertake independently verified destruction of

	incandescent bulbs
Monitoring Emission Reductions	<ul style="list-style-type: none"> • Selection & recruitment of sample group households • Periodic collection of monitoring data • Preparation of monitoring reports for emission reduction verification

Table 1: Operational Categories and Management Responsibilities for CUIDEMOS Mexico PoA

In line with the paragraph 19 of the CDM Project Standard (ver. 03.0, EB74, 26 Jul 2013) Cooling International has developed a “CME Management System” that is made available to the Designated Operational Entity (DOE). The “CME management system” provides the processes and tools necessary to ensure compliance of the PoA and CPAs with the latest version of CDM Project Standard.

B.2. Implementation of single sampling plan(s)

>> Sampling plan is implemented separately for each “block” of specific- case CPAs. The detailed information of the implementation of the sampling plan is outlined in section G3 of Part II.

SECTION C. Post-registration changes to the PoA (including the generic CPA(s))

C.1. Corrections

>> N/A

C.2. Inclusion of a monitoring plan to the registered PoA-DD (including its generic CPA-DD(s)), if a monitoring plan was not included at the time of registration

>> N/A

C.3. 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 twice. The first permanent change to the monitoring plan was approved by UNFCCC secretariat on 15 June 2012. This approval allowed the CME to perform monitoring at the PoA level. Second permanent change to the monitoring plan was approved on 6 May 2015 (PRC ref No. PRC-2535-001). As per the second revised monitoring plan the CPAs included under the PoA will apply lower bound value of the confidence interval of mean usage hours of CPA 1 from the first monitoring period.

This change in monitoring plan is reflected in Version 08 of the registered PoA-DD.

C.4. 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

>>N/A

C.5. Types of changes specific to afforestation and reforestation activities

>>N/A

PART II - Specific-case component project activity(ies)

SECTION D. Description of specific-case CPA(s)

D.1. Brief description of implemented specific-case CPA(s)

>> CPA 2535-0002 to CPA 2535-0025 involve the distribution of free energy efficient light bulbs (Compact Fluorescent Lamps or “CFLs”) which were available to all households across Mexico. CFLs were made available for exchange for an equivalent number of incandescent bulbs (ILBs) at distribution outlets within the project area covered by the CPAs. 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 results in significant 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.

As per the registered monitoring plan, in order to estimate the number of CFLs installed that are still in operation, a minimum of 385 CFLs (i.e. 97 households) are required to be surveyed from each group i.e. “block” of CPAs. CPA/s where distribution occurred within a three-month period constituted a “block” of CPAs.

The CFL exchange occurred in the outlets of distribution partners across Mexico. The CFLs were also distributed via mobile units. Each distribution outlet and mobile units exchanged the light bulbs and captured the details of the customers into a Data Management System. At the time of CFL exchange, the participating households provided their electricity bill thereby enabling the CME to determine whether they were eligible to participate. The collection of utility folio / service code (a unique identification code provided to each household connected to the electricity grid by national utility CFE) ensured that each households can 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.

Incandescent light bulbs were collected for destruction and recycling to ensure they could no longer be used. This process has been independently monitored and verified at the time of inclusion of CPA 2535-0002 to CPA 2535-0025.

Each household were able to bring a maximum of four incandescent light bulbs to outlets during the period of the campaign and exchange them free of charge for the same number of CFLs.

The start and end date of distribution of CFLs for each CPA is outlined in the table 2 below.

CPA No.	CFL Distribution Start Date	CFL Distribution End Date
2535-0002	4/07/2011	15/08/2011
2535-0003	15/08/2011	29/08/2011
2535-0004	29/08/2011	12/09/2011
2535-0005	12/09/2011	26/09/2011
2535-0006	26/09/2011	7/10/2011
2535-0007	7/10/2011	17/10/2011
2535-0008	17/10/2011	25/10/2011
2535-0009	25/10/2011	2/11/2011
2535-0010	2/11/2011	10/11/2011
2535-0011	10/11/2011	17/11/2011
2535-0012	17/11/2011	25/11/2011
2535-0013	25/11/2011	3/12/2011
2535-0014	3/12/2011	14/12/2011
2535-0015	14/12/2011	27/12/2011

2535-0016	27/12/2011	10/01/2012
2535-0017	10/01/2012	22/01/2012
2535-0018	22/01/2012	31/01/2012
2535-0019	31/01/2012	9/02/2012
2535-0020	9/02/2012	20/02/2012
2535-0021	20/02/2012	29/02/2012
2535-0022	29/02/2012	11/03/2012
2535-0023	11/03/2012	26/03/2012
2535-0024	26/03/2012	25/05/2012
2535-0025	25/05/2012	14/06/2012

Table 2: CFL Distribution Date

The technical specification of each CFL distributed under CPA 2535-0002 to CPA 2535-0025 is shown in the table below:

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

Table 3: Technical Specification of CFLs

The total GHG Emission reduction achieved in this monitoring period for the each specific case CPAs are outlined in the table below:

Specific-case CPA reference number	GHG emissions Reduction in this monitoring period (tCO _{2-e})
2535-0002	7,491
2535-0003	7,491
2535-0004	7,491
2535-0005	7,491
2535-0006	7,491
2535-0007	8,806
2535-0008	8,806
2535-0009	8,806
2535-0010	8,806
2535-0011	8,806
2535-0012	8,806
2535-0013	8,806
2535-0014	8,806

2535-0015	8,806
2535-0016	8,806
2535-0017	12,191
2535-0018	12,191
2535-0019	12,191
2535-0020	12,191
2535-0021	12,191
2535-0022	12,191
2535-0023	12,191
2535-0024	6,668
2535-0025	6,469

Table 4: GHG emission reduction achieved by each CPAs

D.2. Geographical references or other means of identification of the location of the specific-case CPA(s)

>> CPA 2535-0002 to CPA 2535-0025 distributed CFLs in the households throughout 324 municipalities¹ across the whole of Mexico (Figure 3). All these CPAs are located within the host country Mexico.



Figure 1. Map of Mexico.

¹ Please refer to the 'Municipality List' file for a full list of the municipalities where CFLs were distributed under CPA 2535-0002 to CPA 2535-0025

SECTION E. Post-registration changes to specific-case CPA(s)**E.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline**

>> Temporary deviation to the registered monitoring plan have been applied during this monitoring period. The request was made to the UNFCCC secretariat on 1 April 2016 (PRC ref No. PRC-2535-002) and was approved on 10 June 2016.

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.

E.2. Corrections

>> N/A

E.3. Changes to the start date of the crediting period of the specific-case CPA(s)

>> Changes to the start date of the crediting period for CPA 2535-0002 to CPA 2535-0025 were approved by the UNFCCC secretariat on 6 April 2016.

E.4. Inclusion of a monitoring plan into the specific-case CPA(s) that was not included at registration

>> N/A

E.5. Permanent changes to the monitoring plan as described in the registered specific-case CPA-DD(s), applied methodology or standardized baseline

>> During this monitoring period, the monitoring plan of the PoA was changed permanently twice. The first permanent change to the monitoring plan was approved by UNFCCC secretariat on 15 June 2012. This approval allowed the CME to perform monitoring at the PoA level. Second permanent change to the monitoring plan was approved on 6 May 2015 (PRC ref No. PRC-2535-001). As per the second revised monitoring plan the CPAs included under the PoA will apply lower bound value of the confidence interval of mean usage hours of CPA 1 from the first monitoring period.

E.6. Changes to project design of the specific-case CPA(s)

>> N/A

E.7. Types of changes specific to afforestation and reforestation specific-case CPA(s)

>> N/A

SECTION F. Description of the monitoring system of specific-case CPA(s)

>> CPA 2535-0002 to CPA 2535-0025:

The coordinating entity is responsible for the management of records and data associated with each SSC-CPA (i.e. CPA 2535-0002 to CPA 2535-0025). CME data collection and record keeping

procedure is outlined in figure 2 below.

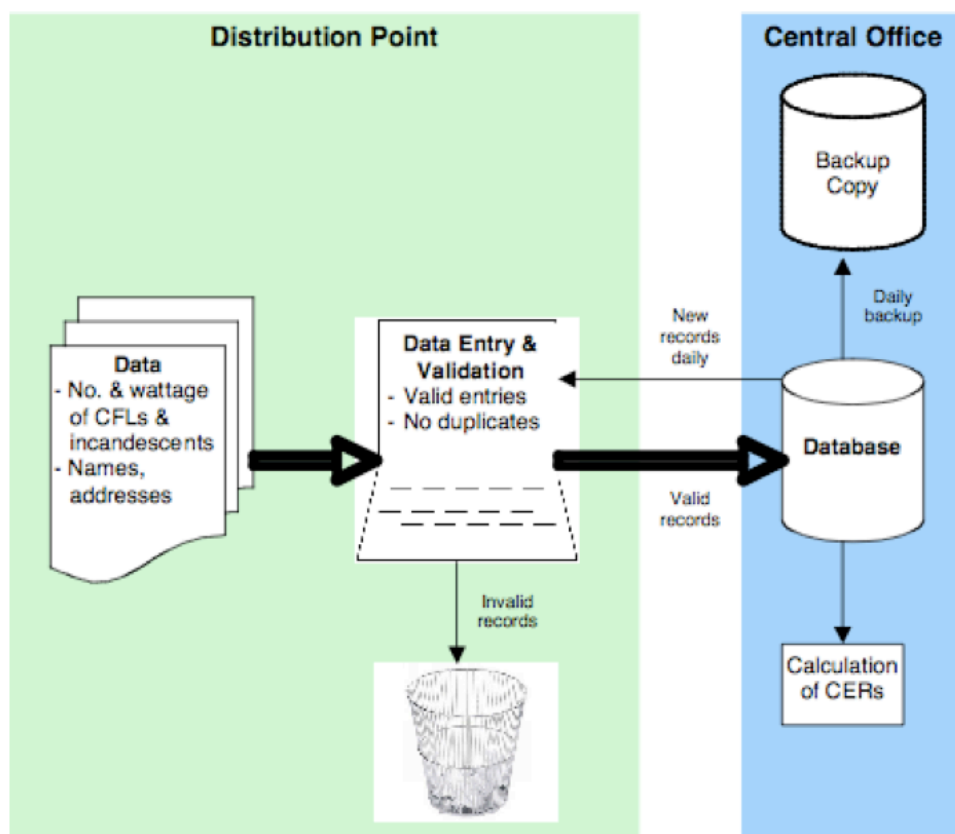


Figure 2: CME Data collection and record keeping procedure

Collection of Incandescent Nameplate Data

The number and power rating of all incandescent lamps collected were recorded. This information is used to determine the weighted average power of baseline devices (p_i).

Collection of CFL Nameplate Data

The coordinating entity has kept a record of the power rating of the CFLs distributed during the project activity and used this to determine the weighted average power rating for the project devices (p_k).

Check that numbers of CFLs and incandescent bulbs correspond

As is required for PoAs applying AMS-II.C, the number of CFLs distributed under this 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 enter it into the data management system (DMS). Every incandescent bulb received, and every CFL provided was recorded in the DMS. DMS was available online. Each distributor had access to the DMS as their computers were connected to the internet. Each distributor recorded the project related information into the DMS by using their local computer. This way the project data were inputted into the DMS from all distributors across the country. At the

conclusion of the distribution process, the DMS provided an accurate record of the total numbers of bulbs exchanged.

Independent check of scrapped incandescent bulbs

As is required by the methodology, the coordinating entity used the services of a local notary to conduct independent verification of the scrapping of incandescent light bulbs collected during the distribution process. Incandescent bulbs collected during the distribution were transported to a waste management company where scrapping were conducted. All storage and destruction processes were independently verified and the result of such process were presented to the verifying DOE.

Data Management System

The coordinating entity manages a data management system (DMS) that records all information relevant to the CPA and monitoring, including:

- A list of households participated in the project, including information to identify households by name and address.
- A record of the incandescent bulbs collected (number and power) surrendered by, and replacement CFLs (number and power) provided to, each participating household.

CFL Collection & Recycling Scheme

The CME has encouraged the Mexican government to establish a CFL recycling scheme. The CME has contacted the Mexican government since the original distribution, to check on progress. The CME has also encouraged a cross section of householders to take action on CFL collection and recycling.

SECTION G. Data and parameters

G.1. Data and parameters fixed ex ante, at registration, inclusion or renewal of crediting period

Data/parameter	L_k
Unit	-
Description	Number of CFLs to be distributed by the SSC-CPA implementer.
Source of data	Determined by project participants

Value(s) applied	CPA Number	Value (s)
	CPA 2535-0002	948,780
	CPA 2535-0003	944,948
	CPA 2535-0004	945,336
	CPA 2535-0005	942,400
	CPA 2535-0006	942,224
	CPA 2535-0007	943,312
	CPA 2535-0008	939,136
	CPA 2535-0009	947,016
	CPA 2535-0010	949,120
	CPA 2535-0011	949,776
	CPA 2535-0012	952,216
	CPA 2535-0013	951,424
	CPA 2535-0014	951,304
	CPA 2535-0015	951,848
	CPA 2535-0016	955,548
	CPA 2535-0017	961,964
	CPA 2535-0018	963,400
	CPA 2535-0019	964,788
	CPA 2535-0020	967,108
	CPA 2535-0021	968,120
	CPA 2535-0022	968,332
	CPA 2535-0023	972,132
	CPA 2535-0024	970,436
	CPA 2535-0025	949,336
Choice of data or measurement methods and procedures	The total number of devices distributed within the CPA as recorded in the project data management system (DMS).	
Purpose of data	Calculation of baseline emissions	
Additional comments	N/A	

Data/parameter	n_{PCCG}
Unit	CFLs
Description	Total sample size used for checking to ensure on-going operation of CFLs.
Source of data	Determined by project participants as per the procedure outlined in Annex 7 (CUIDEMOS Mexico PoA - Sampling Plan)

Value(s) applied	CPA Block	Included CPAs	Minimum Sample Size
	Block 1	CPA 2535-0002, CPA 2535-0003, CPA 2535-0004, CPA 2535-0005, part of CPA 2535-0006	385
	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, CPA 2535-0013, CPA 2535-0014, CPA 2535-0015, part of CPA 2535-0016	385
	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	385
	Block 4	Part of CPA 2535-0024, CPA 2535-0025	385
Choice of data or measurement methods and procedures	<p>Within each household up to four light bulbs were checked.</p> <p>In order to constitute the sample size for PCCG group, CPAs were grouped into four Blocks i.e . from Block 1 to Block 4, according to distribution date. A minimum of 97 households were surveyed for each block of CPA/s whether the block contains a single CPA or more. A separate sample were taken for each of these blocks. Specifically, all CPAs where distribution occurred within a three-month period were combined for the purposes of this estimation and a sample were taken randomly from the households in that block of CPA/s.</p>		
Purpose of data	Calculation of project emissions		
Additional comments	Annex 7 ('CUIDEMOS Mexico PoA – Sampling Plan) provides a detailed description of the statistical methods used to determine the sample size and to select households for the PCCG.		

Data/parameter	EF
Unit	kgCO ₂ /kWh
Description	Emissions factor for electricity displaced from the grid relevant to the project boundary.
Source of data	Official government data – SENER “Prospectiva del sector electrico 2005-2014”, “Prospectiva del sector electrico 2006-2015”, “Prospectiva del sector electrico 2007-2016”

Value(s) applied	CPA Number	Value (s)
	CPA 2535-0002	0.514
	CPA 2535-0003	0.514
	CPA 2535-0004	0.514
	CPA 2535-0005	0.514
	CPA 2535-0006	0.514
	CPA 2535-0007	0.514
	CPA 2535-0008	0.514
	CPA 2535-0009	0.514
	CPA 2535-0010	0.514
	CPA 2535-0011	0.514
	CPA 2535-0012	0.514
	CPA 2535-0013	0.514
	CPA 2535-0014	0.514
	CPA 2535-0015	0.514
	CPA 2535-0016	0.514
	CPA 2535-0017	0.514
	CPA 2535-0018	0.514
	CPA 2535-0019	0.514
	CPA 2535-0020	0.514
	CPA 2535-0021	0.514
	CPA 2535-0022	0.514
	CPA 2535-0023	0.514
	CPA 2535-0024	0.514
	CPA 2535-0025	0.514
Choice of data or measurement methods and procedures	Project coordinator has obtained data from government sources and applied calculation methodology specified in “Tool to calculate the emission factor for an electricity system” version 1 (EB Report 35, Annex 12). Details of calculation are provided in section E.6.2 of the PoA-DD.	
Purpose of data	Calculation of baseline and project emissions	
Additional comments	-	

G.2. Data and parameters monitored

(Copy this table for each piece of data and parameter)

Data/parameter	n_k
Unit	-
Description	Number of operational CFLs.
Measured/calculated/ default	Calculated
Source of data	Record keeping during CFL exchange process in the DMS, and the PCCG household survey

Value(s) of monitored parameter	CPA Number	Value (s)
	CPA 2535-0002	135,848
	CPA 2535-0003	135,299
	CPA 2535-0004	135,355
	CPA 2535-0005	134,935
	CPA 2535-0006	134,909
	CPA 2535-0007	158,775
	CPA 2535-0008	158,072
	CPA 2535-0009	159,399
	CPA 2535-0010	159,753
	CPA 2535-0011	159,863
	CPA 2535-0012	160,274
	CPA 2535-0013	160,141
	CPA 2535-0014	160,120
	CPA 2535-0015	160,212
	CPA 2535-0016	160,835
	CPA 2535-0017	224,147
	CPA 2535-0018	224,482
	CPA 2535-0019	224,805
	CPA 2535-0020	225,346
	CPA 2535-0021	225,581
	CPA 2535-0022	225,631
	CPA 2535-0023	226,516
	CPA 2535-0024	123,683
	CPA 2535-0025	120,994
	The coordinating entity has kept records of each household participating in the project activity, including the number of project devices distributed.	
Monitoring equipment	N/A	
Measuring/reading/recording frequency	Once per monitoring period	
Calculation method (if applicable)	The initial value of L_k was determined through record keeping during the exchange of CFLs for incandescent lamps and has been adjusted according to the proportion of devices found still to be operating during the survey of PCCG households. The household survey therefore provides the value to be used for n_k	
QA/QC procedures	<p>At the time of the exchange with each household a record was kept of the number and power of CFLs provided to them. This information was stored in the project data management system (DMS). Each employee involved in the distribution of CFLs was trained in the use of the DMS to ensure accurate record keeping.</p> <p>The DMS used industry standard software, databases, infrastructure and back-up procedures to allow full auditability with the aim of ensuring long-term data integrity and security so that data was not misrecorded, overwritten or lost. Data entry occurred at point of CFL distribution to householders, with the full database stored at a central location. Data was verified in a timely manner at point of data entry to ensure valid and non-duplicate names and addresses, and a valid and accurate number and wattage of both incandescent bulbs replaced, as well as number and wattage of CFLs distributed, for each household.</p> <p>The PCCG household survey was conducted by Strategy Success' (an independent company) qualified personnel.</p> <p>All data will be stored in the project DMS for at least two years after the crediting period or the last issuance of CERs, for this programme, whichever occurs later.</p>	
Purpose of data	Calculation of project emissions	
Additional comments	N/A	

Data/parameter	n_i																																																		
Unit	-																																																		
Description	Number of incandescent bulbs operational in baseline scenario																																																		
Measured/calculated/ default	Calculated																																																		
Source of data	Record keeping during incandescent exchange process in the DMS and the PCCG household survey.																																																		
Value(s) of monitored parameter	<table border="1"> <thead> <tr> <th>CPA Number</th><th>Value (s)</th></tr> </thead> <tbody> <tr><td>CPA 2535-0002</td><td>135,848</td></tr> <tr><td>CPA 2535-0003</td><td>135,299</td></tr> <tr><td>CPA 2535-0004</td><td>135,355</td></tr> <tr><td>CPA 2535-0005</td><td>134,935</td></tr> <tr><td>CPA 2535-0006</td><td>134,909</td></tr> <tr><td>CPA 2535-0007</td><td>158,775</td></tr> <tr><td>CPA 2535-0008</td><td>158,072</td></tr> <tr><td>CPA 2535-0009</td><td>159,399</td></tr> <tr><td>CPA 2535-0010</td><td>159,753</td></tr> <tr><td>CPA 2535-0011</td><td>159,863</td></tr> <tr><td>CPA 2535-0012</td><td>160,274</td></tr> <tr><td>CPA 2535-0013</td><td>160,141</td></tr> <tr><td>CPA 2535-0014</td><td>160,120</td></tr> <tr><td>CPA 2535-0015</td><td>160,212</td></tr> <tr><td>CPA 2535-0016</td><td>160,835</td></tr> <tr><td>CPA 2535-0017</td><td>224,147</td></tr> <tr><td>CPA 2535-0018</td><td>224,482</td></tr> <tr><td>CPA 2535-0019</td><td>224,805</td></tr> <tr><td>CPA 2535-0020</td><td>225,346</td></tr> <tr><td>CPA 2535-0021</td><td>225,581</td></tr> <tr><td>CPA 2535-0022</td><td>225,631</td></tr> <tr><td>CPA 2535-0023</td><td>226,516</td></tr> <tr><td>CPA 2535-0024</td><td>123,683</td></tr> <tr><td>CPA 2535-0025</td><td>120,994</td></tr> </tbody> </table>	CPA Number	Value (s)	CPA 2535-0002	135,848	CPA 2535-0003	135,299	CPA 2535-0004	135,355	CPA 2535-0005	134,935	CPA 2535-0006	134,909	CPA 2535-0007	158,775	CPA 2535-0008	158,072	CPA 2535-0009	159,399	CPA 2535-0010	159,753	CPA 2535-0011	159,863	CPA 2535-0012	160,274	CPA 2535-0013	160,141	CPA 2535-0014	160,120	CPA 2535-0015	160,212	CPA 2535-0016	160,835	CPA 2535-0017	224,147	CPA 2535-0018	224,482	CPA 2535-0019	224,805	CPA 2535-0020	225,346	CPA 2535-0021	225,581	CPA 2535-0022	225,631	CPA 2535-0023	226,516	CPA 2535-0024	123,683	CPA 2535-0025	120,994
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CPA 2535-0025	120,994																																																		
Monitoring equipment	N/A																																																		
Measuring/reading/ recording frequency	Once per monitoring period																																																		
Calculation method (if applicable)	<p>The CME has kept records of each household participating in the project activity, including the number of incandescent bulbs collected and subsequently destroyed. The initial value of n_i, determined immediately after the collection of ILBs has been completed, provides the starting point for qualification of baseline scenario.</p> <p>For the purpose of calculating emissions reductions, the CME has applied the same value for n_i as for n_k, ensuring equivalent comparison of energy usage of project CFLs and baseline ILBs. This value has been obtained from PCCG household survey.</p>																																																		

QA/QC procedures	<p>At the time of the exchange with each household a record was kept of the number of incandescent bulbs replaced. This information was stored in the project data management system (DMS). Each employee involved in the project was trained in the use of the DMS to ensure accurate record keeping.</p> <p>The DMS uses industry standard software, databases, infrastructure and back-up procedures to allow full auditability with the aim of ensuring long-term data integrity and security so that data is not misrecorded, overwritten or lost. Data entry occurred at point of incandescent exchange with householders, with the full database stored at a central location. Data was verified in a timely manner at point of data entry to ensure valid and non-duplicate names and addresses, and a valid and accurate number and wattage of both incandescent bulbs replaced, as well as number and wattage of CFLs distributed, for each household.</p> <p>As per AMS-II.C, the CME has conducted the independent verification of the total number of destroyed incandescent bulbs.</p> <p>All data will be stored in the project DMS for at least two years after the crediting period or the last issuance of CERs, for this programme, whichever occurs later.</p>
Purpose of data	Calculation of baseline emissions
Additional comments	N/A

Data/parameter	p _i		
Unit	Watts		
Description	The weighed average power of inscandescent bulbs “i” replaced during the exchange process.		
Measured/calculated/ default	Calculated		
Source of data	Nameplate data		
Value(s) of monitored parameter	CPA Number		Value (s)
	CPA 2535-0002		76.640
	CPA 2535-0003		76.858
	CPA 2535-0004		76.836
	CPA 2535-0005		77.003
	CPA 2535-0006		77.013
	CPA 2535-0007		76.951
	CPA 2535-0008		77.191
	CPA 2535-0009		76.740
	CPA 2535-0010		76.621
	CPA 2535-0011		76.584
	CPA 2535-0012		76.446
	CPA 2535-0013		76.491
	CPA 2535-0014		76.498
	CPA 2535-0015		76.467
	CPA 2535-0016		76.260
	CPA 2535-0017		75.905
	CPA 2535-0018		75.826
	CPA 2535-0019		75.750
	CPA 2535-0020		75.624
	CPA 2535-0021		75.568
	CPA 2535-0022		75.557
	CPA 2535-0023		75.352
	CPA 2535-0024		75.443
	CPA 2535-0025		75.011
Monitoring equipment	N/A		

Measuring/reading/recording frequency	Once. Recorded at the time of exchange.
Calculation method (if applicable)	The CME kept records of each household participating in the project activity, including the wattage of incandescent bulbs collected and subsequently destroyed.
QA/QC procedures	<p>At the time of exchange with each household, a record was kept of the power of ILB replaced. This information was stored in the DMS. Each employee involved in the project was trained in the use of the DMS to ensure accurate record keeping.</p> <p>The DMS uses industry software, databases, infrastructure and back-up procedure to allow full auditability with the aim of ensuring long-term data integrity and security so that data is not misrecorded, overwritten or lost. Data entry occurs at the point of ILB exchange, with the full database stored at a central location. Data is verified in a timely manner at point of data entry to ensure a valid and accurate number and wattage of ILB replaced.</p> <p>All data will be stored in the project DMS for at least two years after the crediting period or the last issuance of CERs, for this programme, whichever occurs later.</p>
Purpose of data	Calculation of baseline emissions.
Additional comments	N/A

Data/parameter	P_k
Unit	Watts
Description	The weighted average power of the CFLs "k" distributed.
Measured/calculated/ default	Calculated
Source of data	Nameplate data
Value(s) of monitored parameter	23.000
Monitoring equipment	N/A
Measuring/reading/recording frequency	The coordinating entity kept records of each household participating in the project activity, including the wattage of CFLs distributed.
Calculation method (if applicable)	The CME kept records of each household participating in the project activity, including the wattage of CFL distributed.
QA/QC procedures	<p>At the time of exchange with each household, a record was kept of the power of CFL distributed. This information was stored in the DMS. Each employee involved in the project was trained in the use of DMS to ensure accurate record keeping.</p> <p>The DMS uses industry software, databases, infrastructure and back-up procedure to allow full auditability with the aim of ensuring long-term data integrity and security so that data is not misrecorded, overwritten or lost. Data entry occurs at the point of ILB exchange, with the full database stored at a central location. Data is verified in a timely manner at point of data entry to ensure a valid and accurate number and wattage of CFL distributed.</p> <p>All data will be stored in the project DMS for at least two years after the crediting period or the last issuance of CERs, for this programme, whichever occurs later.</p>
Purpose of data	Calculation of project emissions
Additional comments	N/A

Data/parameter	O_k
Unit	Hours

Description	The average annual operating hours of CFLs "k" distributed.
Measured/calculated/ default	Calculated
Source of data	Lower bound value of the confidence interval of mean operating hours of CPA 1 - CUIDEMOS Mexico (Campana De Uso Inteligente De Energia Mexico) – Puebla ,project CFLs from the first monitoring period
Value(s) of monitored parameter	1.914 hours
Monitoring equipment	N/A
Measuring/reading/ recording frequency	N/A
Calculation method (if applicable)	<p>The CPAs that are included in the PoA have utilised the lower bound value of the confidence interval of mean operating hours for CPA 1 project CFLs from the first monitoring period. In the first monitoring period of CPA 1, the mean, lower and upper values of the interval were 2.13 hours, 1.914 and 2.355 respectively.</p> <p>CPA 1 had distributed 954,706 CFLs in Mexico and the samples were randomly selected from a large population of almost 1 million CFLs. The lower bound value of the confidence interval of the mean value i.e. 1.914 hours) is based on continuously measured randomly selected sample CFLs. The representative samples of CFLs were continuously monitored for 365 days hence the measurement of operating hours is representative of the annual variation of daylight hours in the country.</p>
QA/QC procedures	N/A
Purpose of data	Calculation of Project Emissions and Baseline Emissions
Additional comments	N/A

Data/parameter	CFL collection and recycling scheme.
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
Source of data	Report from coordinating entity where applicable.
Value(s) of monitored parameter	N/A
Monitoring equipment	N/A
Measuring/reading/ recording frequency	N/A
Calculation method (if applicable)	N/A
QA/QC procedures	N/A
Purpose of data	N/A

Additional comments	<p>The CME has encouraged the Mexican government to establish a CFL recycling scheme. The CME has contacted the Mexican government since the original distribution, to check on progress. In response to the CME's request, the Mexican Government provided detail on government's current obligations and requirements in regards to disposal of CFLs.</p> <p>The CME has also encouraged a cross section of householders to take action on CFL collection and recycling. During the CFL functionality check survey, the CME provided an information sheet to the households that encouraged them to recycle any failed CFLs.</p>
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G.3. Implementation of specific-case CPA level sampling plan

>> The sampling objective is to determine the proportion of operating CFLs for each monitoring period during the crediting period with a 95/10 confidence / precision.

In order to estimate the number of CFLs installed that are still in operation, a minimum of 385 CFLs (i.e. 97 households) were surveyed from each group i.e. "block" of CPAs. CPA/s where distribution occurred within a three-month period constituted a "block" of CPAs.

CPA 2535-0002 to CPA 2535-0025 were divided into 4 block of CPAs based on the CFLs distribution date. The table below outlines the CPAs that falls under each block of CPAs.

Block of CPAs	CPAs under each block	Total Households	Total CFLs
Block 1 4 th July 2011 to 3 rd October 2011	CPA2, CPA3, CPA4, CPA5 & part of CPA6	1,089,793	4,359,172
Block 2 4 th October 2011 to 3 rd January 2012	Part of CPA6, CPA7, CPA8, CPA9, CPA10, CPA11, CPA12, CPA13, CPA14, CPA15 & part of CPA16	2,367,659	9,470,636
Block 3 4 th January 2012 to 3 rd April 2012	Part of CPA16, CPA17, CPA18, CPA19, CPA20, CPA21, CPA22, CPA23 & part of CPA24	1,847,358	7,389,432
Block 4 4 th April 2012 to 14 th June 2012	Part of CPA24 & CPA25	420,191	1,680,764
	Total	5,725,001	22,900,004

Sampling Method

In line with the registered monitoring plan, the samples for the PCCG are randomly selected from the block of CPAs. All CPAs (CPA 2535-0002 to CPA 2535-0025) implement the same CFL technology within the same geographical boundary and are representative of the population. Since all block of CPAs implemented the same CFL technology in the same geographical boundary samples were randomly selected from the block of each CPAs using simple random sampling method.

Sample Size

In line with the registered monitoring plan, a minimum sample of 97 households was randomly selected using random number generator from each block of CPAs. “Strategy Success” – a Mexico based company conducted the PCCG survey. The PCCG survey report prepared by Strategy Success has been submitted to the DOE for verification.

The table below outlines the number of samples randomly selected for PCCG survey across each block of CPAs.

Block of CPAs	Number of Households Surveyed	Number of CFLs surveyed
Block 1	110	440
Block 2	101	404
Block 3	103	412
Block 4	102	408

Reliability Check

1. Block 1 CPAs

CPAs included under Block 1	Total Households	Total CFLs
CPA2, CPA3, CPA4, CPA5 & part of CPA6	1,089,793	4,359,172

Total number of household surveyed	110
Total number of CFL sample checked (n)	440
Total Number of Operational CFLs	63
Total Number of non-operational CFLs	377

The Reliability checking procedure is based on Guideline on Sampling and surveys for CDM project activities and programmes of activities (Version 04.0), Appendix 4

$$\sqrt{(1-f) \frac{pq}{n}}$$

Standard error of the proportion =

Where,

f is the sampling fraction i.e. the proportion of the population that is sampled

Here, $f = 440 / 4,359,172 = 0.000100937$

p = the proportional parameter of interest (either the expected proportion of CFLs that are operating, or the expected number of CFLs that are no longer operating, whichever is larger, as stated in the registered monitoring plan)

$$q = (1-p)$$

As per paragraph 11 (a) footnote 10 of the 'Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities' Version 05.0), the check on meeting the reliability requirement should be based on the larger of the two proportions.

For this block of CPAs, p (i.e. parameter of interest) is the number of CFLs that are non operational as it is the larger proportion as shown below:

$$p = \text{Non-Operational sample CFLs} / \text{Total number of sample surveyed (n)}$$

$$= 377 / 440 = 0.856818182$$

$$q = (1-p) = (1 - 0.856818182) = 0.143181818$$

Detailed calculation is submitted to the DOE in a separate spreadsheet. Summary of the calculated parameters are outlined below

z- value	1.96
Population	4,359,172
n	440
Non- Operational sample CFLs	377
P	0.856818182
q	0.143181818
f	0.000100937
(1-f)	0.999899063
pq	0.122680785
pq/n	0.00027882
(1-f) /* (pq/n)	0.000278792
Standard Error of the Proportion	0.01669706
Standard Error of the Percentage	1.670%
	(+/-) 0.032726238
The Precision associated with a proportion	
The ratio of this relative to proportion of CFLs that are non operational	0.038195079

Therefore, The relative Precision is 3.819%

Confidence Interval

As per the "Guideline on Sampling and surveys for CDM project activities and programmes of activities (Version 04.0), Appendix 4" (page 96, footnote 2):

Confidence interval for a proportion: sample proportion \pm z-value x standard error of the proportion.

For 95% confidence value of z = 1.96

Therefore,

Upper Confidence value = 88.954%

Lower Confidence value = 82.409%

Conclusion:

The relative precision is lower than the required precision of 10%. This means that the sample data meets the required reliability requirement. The % of non-operational CFLs is 85.681.

We are therefore 95% sure that the percentage of CFLs in the population that are non-operational is between 82% and 89%.

Hence, % of CFLs that are operational is 14.318.

2. Block 2 CPAs

CPAs included under Block 2	Total Households	Total CFLs
Part of CPA6, CPA7, CPA8, CPA9, CPA10, CPA11, CPA12, CPA13, CPA14, CPA15 & part of CPA16	2,367,659	9,470,636

Total number of household surveyed	101
Total number of CFL sample checked (n)	404
Total Number of Operational CFLs	68
Total Number of non-operational CFLs	336

The Reliability checking procedure is based on Guideline on Sampling and surveys for CDM project activities and programmes of activities (Version 04.0), Appendix 4

$$\sqrt{(1-f) \frac{pq}{n}}$$

Standard error of the proportion =

Where,

f is the sampling fraction i.e. the proportion of the population that is sampled

Here, $f = 404 / 9,470,636 = 0.0000426582$

p = the proportional parameter of interest (either the expected proportion of CFLs that are operating, or the expected number of CFLs that are no longer operating, whichever is larger, as stated in the registered monitoring plan)

q = (1-p)

As per paragraph 11 (a) footnote 10 of the 'Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities' Version 05.0), the check on meeting the reliability requirement should be based on the larger of the two proportions.

For this block of CPAs, p (i.e. parameter of interest) is the number of CFLs that are non operational

as it is the larger proportion as shown below:

$p = \text{Non-Operational sample CFLs} / \text{Total number of sample surveyed (n)}$

$= 336 / 404 = 0.8317$

$q = (1-p) = (1 - 0.8317) = 0.1683$

Detailed calculation is submitted to the DOE in a separate spreadsheet. Summary of the calculated parameters are outlined below.

z- value	1.96
Population	9,470,636
n	404
Non- Operational sample CFLs	336
P	0.8317
q	0.1683
f	0.0000426582
(1-f)	0.999957342
pq	0.139986276
pq/n	0.000346501
(1-f) /* (pq/n)	0.000346486
Standard Error of the Proportion	0.018614132
Standard Error of the Percentage	1.861%
	(+/-) 0.036483698
The Precision associated with a proportion	
The ratio of this relative to proportion of CFLs that are non operational	0.043867304

Therefore, The relative Precision is 4.3867%

Confidence Interval

As per the "Guideline on Sampling and surveys for CDM project activities and programmes of activities (Version 04.0), Appendix 4" (page 96, footnote 2):

Confidence interval for a proportion: sample proportion \pm z-value x standard error of the proportion.

For 95% confidence value of $z = 1.96$

Therefore,

Upper Confidence value = 86.817%

Lower Confidence value = 79.520%

Conclusion:

The relative precision is lower than the required precision of 10%. This means that the sample data meets the required reliability requirement. The % of non-operational CFLs is 83.17%

We are therefore 95% sure that the percentage of CFLs in the population that are non-operational is between 79% and 87%.

Hence, % of CFLs that are operational is 16.832.

3. Block 3 CPAs

CPAs included under Block 3	Total Households	Total CFLs
Part of CPA16, CPA17, CPA18, CPA19, CPA20, CPA21, CPA22, CPA23 & part of CPA24	1,847,358	7,389,432

Total number of household surveyed	103
Total number of CFL sample checked (n)	412
Total Number of Operational CFLs	96
Total Number of non-operational CFLs	316

The Reliability checking procedure is based on Guideline on Sampling and surveys for CDM project activities and programmes of activities (Version 04.0), Appendix 4

$$\sqrt{(1-f) \frac{pq}{n}}$$

Standard error of the proportion =

Where,

f is the sampling fraction i.e. the proportion of the population that is sampled

Here, $f = 412 / 7,389,432 = 0.0000557553$

p = the proportional parameter of interest (either the expected proportion of CFLs that are operating, or the expected number of CFLs that are no longer operating, whichever is larger, as stated in the registered monitoring plan

$q = (1-p)$

As per paragraph 11 (a) footnote 10 of the 'Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities' Version 05.0), the check on meeting the reliability requirement should be based on the larger of the two proportions.

For this block of CPAs, p (i.e. parameter of interest) is the number of CFLs that are non operational as it is the larger proportion as shown below:

$p = \text{Non-Operational sample CFLs} / \text{Total number of sample surveyed (n)}$

$= 316 / 412 = 0.766990291$

$$q = (1-p) = (1 - 0.766990291) = 0.233009709$$

Detailed calculation is submitted to the DOE in a separate spreadsheet.

Summary of the calculated parameters are outlined below.

z- value	1.96
Population	7,389,432
n	412
Non- Operational sample CFLs	316
P	0.766990291
q	0.233009709
f	0.0000557553
(1-f)	0.999944245
pq	0.178716184
pq/n	0.000433777
(1-f) /* (pq/n)	0.000433753
Standard Error of the Proportion	0.020826737
Standard Error of the Percentage	2.083%
	(+/-) 0.040820404
The Precision associated with a proportion	
The ratio of this relative to proportion of CFLs that are non operational	0.053221539

Therefore, The relative Precision is 5.322%

Confidence Interval

As per the "Guideline on Sampling and surveys for CDM project activities and programmes of activities (Version 04.0), Appendix 4" (page 96, footnote 2):

Confidence interval for a proportion: sample proportion \pm z-value x standard error of the proportion.

For 95% confidence value of $z = 1.96$

Therefore,

Upper Confidence value = 80.781%

Lower Confidence value = 72.617%

Conclusion:

The relative precision is lower than the required precision of 10%. This means that the sample data meets the required reliability requirement. The % of non-operational CFLs is 76.699.

We are therefore 95% sure that the percentage of CFLs in the population that are non-operational is between 72% and 81%.

Hence, % of CFLs that are operational is 23.30.

4. Block 4 CPAs

CPAs included under Block 4	Total Households	Total CFLs
Part of CPA24 & CPA25	420,191	1,680,764

Total number of household surveyed	102
Total number of CFL sample checked (n)	408
Total Number of Operational CFLs	52
Total Number of non-operational CFLs	356

The Reliability checking procedure is based on Guideline on Sampling and surveys for CDM project activities and programmes of activities (Version 04.0), Appendix 4

$$\text{Standard error of the proportion} = \sqrt{(1-f) \frac{pq}{n}}$$

Where,

f is the sampling fraction i.e. the proportion of the population that is sampled

Here, $f = 408 / 1,680,764 = 0.000242747$

p = the proportional parameter of interest (either the expected proportion of CFLs that are operating, or the expected number of CFLs that are no longer operating, whichever is larger, as stated in the registered monitoring plan)

$q = (1-p)$

As per paragraph 11 (a) footnote 10 of the 'Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities' Version 05.0), the check on meeting the reliability requirement should be based on the larger of the two proportions.

For this block of CPAs, p (i.e. parameter of interest) is the number of CFLs that are non operational as it is the larger proportion as shown below:

$p = \text{Non-Operational sample CFLs} / \text{Total number of sample surveyed (n)}$

$= 356 / 408 = 0.872$

$q = (1-p) = (1 - 0.872) = 0.12745$

Detailed calculation is submitted to the DOE in a separate spreadsheet.

Summary of the calculated parameters are outlined below.

z- value	1.96
Population	1,680,764

n	408
Non- Operational sample CFLs	356
P	0.87255
q	0.12745
f	0.000242747
(1-f)	0.999757253
pq	0.111207228
pq/n	0.000272567
(1-f) /* (pq/n)	0.000272501
Standard Error of the Proportion	0.016507591
Standard Error of the Percentage	1.651%
	(+/-) 0.032354879
The Precision associated with a proportion	
The ratio of this relative to proportion of CFLs that are non operational	0.037080873

Therefore, The relative Precision is 3.708%

Confidence Interval

As per the “Guideline on Sampling and surveys for CDM project activities and programmes of activities (Version 04.0), Appendix 4” (page 96, footnote 2):

Confidence interval for a proportion: sample proportion \pm z-value x standard error of the proportion.

For 95% confidence value of z = 1.96

Therefore,

Upper Confidence value = 90.490%

Lower Confidence value = 84.019%

Conclusion:

The relative precision is lower than the required precision of 10%. This means that the sample data meets the required reliability requirement. The % of non-operational CFLs is 87.255.

We are therefore 95% sure that the percentage of CFLs in the population that are non-operational is between 84% and 91%.

Hence, % of CFLs that are operational is 12.745.

The table below summarises the % of operating CFLs that is applied to the individual CPAs to calculate ER calculation under each block of CPAs

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

SECTION H. Calculation of GHG emission reductions or net GHG removals by sinks

H.1. Calculation of baseline emissions or baseline net GHG removals by sinks

>> For all CPAs under the PoA (CPA 2535-0002 to CPA 2535-0025) baseline emissions are calculated in accordance with “AMS-II.C Demand-side energy efficiency activities for specific technologies” (Version 09).

Because the energy displaced is electricity, the emission baseline is determined as the product of the baseline energy consumption of equipment/appliances and the emission factor for the electricity displaced:

$$BE_y = E_{BL,y} * EF_{CO_2, ELEC,y} \quad (1)$$

$$E_{BL,y} = \sum_i (n_i \cdot p_i \cdot o_i) \quad (2)$$

Where:

BE_y	Baseline emissions in monitoring period y (tCO ₂ e)
$E_{BL,y}$	Energy consumption in the baseline in monitoring period y (kWh)
$EF_{CO_2, ELEC,y}$	Emission factor in monitoring period y calculated in accordance with the provisions in AMS-I.D (tCO ₂ e /MWh)
\sum_i	the sum over the group of “i” devices (e.g. 40W incandescent bulb, 5hp motor) replaced, for which the substituted energy efficient equipment is operating during the monitoring period, implemented as part of the project.
n_i	The number of devices of the group of “i” devices (e.g. 40W incandescent bulb, 5hp motor) replaced for which the substituted energy efficient equipment is operating during the monitoring period.
p_i	The power of the devices of the group of “i” devices (e.g. 40W incandescent bulb, 5hp motor) replaced. In the case of a retrofit activity, “power” is the weighted average of the devices replaced.
o_i	The average annual operating hours of the devices of the group of “i” devices replaced.

For CPA 2535 -0002 to CPA 2535 -0025, value for n_i , p_i and o_i are presented below along with the values for baseline emissions.

CPA	n_i	p_i	o_i	$EF_{CO_2, ELEC,y}$ (kgCO ₂ /kWh)	Baseline Electricity Consumption ($E_{BL,y}$, kWh)	Baseline Emissions (BE_y , tCO ₂ e)
CPA 2535-0002	135,848	76.640	1.914	0.514	20,824,167.89	10,703.622
CPA 2535-0003	135,299	76.858	1.914	0.514	20,798,927.59	10,690.649
CPA 2535-0004	135,355	76.836	1.914	0.514	20,801,483.55	10,691.963
CPA 2535-0005	134,935	77.003	1.914	0.514	20,782,128.41	10,682.014
CPA 2535-0006	134,909	77.013	1.914	0.514	20,780,962.83	10,681.415
CPA 2535-0007	158,775	76.951	1.914	0.514	24,437,405.16	12,560.826
CPA 2535-0008	158,072	77.191	1.914	0.514	24,405,054.24	12,544.198

CPA 2535-0009	159,399	76.740	1.914	0.514	24,466,103.36	12,575.577
CPA 2535-0010	159,753	76.621	1.914	0.514	24,482,385.71	12,583.946
CPA 2535-0011	159,863	76.584	1.914	0.514	24,487,506.24	12,586.578
CPA 2535-0012	160,274	76.446	1.914	0.514	24,506,337.07	12,596.257
CPA 2535-0013	160,141	76.491	1.914	0.514	24,500,225.08	12,593.116
CPA 2535-0014	160,120	76.498	1.914	0.514	24,499,334.63	12,592.658
CPA 2535-0015	160,212	76.467	1.914	0.514	24,503,510.84	12,594.805
CPA 2535-0016	160,835	76.260	1.914	0.514	24,532,114.78	12,609.507
CPA 2535-0017	224,147	75.905	1.914	0.514	34,029,971.03	17,491.405
CPA 2535-0018	224,482	75.826	1.914	0.514	34,045,306.39	17,499.287
CPA 2535-0019	224,805	75.750	1.914	0.514	34,060,154.74	17,506.920
CPA 2535-0020	225,346	75.624	1.914	0.514	34,085,114.03	17,519.749
CPA 2535-0021	225,581	75.568	1.914	0.514	34,095,905.41	17,525.295
CPA 2535-0022	225,631	75.557	1.914	0.514	34,098,205.37	17,526.478
CPA 2535-0023	226,516	75.352	1.914	0.514	34,138,900.83	17,547.395
CPA 2535-0024	123,683	75.443	1.914	0.514	18,663,263.62	9,592.918
CPA 2535-0025	120,994	75.011	1.914	0.514	18,152,892.51	9,330.587

H.2. Calculation of project emissions or actual net GHG removals by sinks

>> For all CPAs under the PoA (CPA 2535-0002 to CPA 2535-0025), project emissions consist of electricity and/or fossil fuel used in the project equipment, determined as follows:

$$PE_y = E_{PJ,y} * EF_{CO2,y} \quad (3)$$

Where:

PE_y	Project emissions in monitoring period y (tCO ₂ e)
$E_{PJ,y}$	Energy consumption in project activity in monitoring period y . This shall be determined <i>ex post</i> based on monitored values
$EF_{CO2,y}$	Emission factor for electricity or thermal energy displaced. The emissions associated with grid electricity consumption should be calculated in accordance with the procedures of AMS-I.D.

Project energy consumption in case of project activities that displace grid electricity is determined as follows using the data of the project equipment:

$$E_{PJ,y} = \sum_k (n_k \cdot p_k \cdot o_k) \quad (4)$$

Where:

Σ_k	The sum over the group of “k” replacement devices operating during the year, implemented as part of the project.
n_k	The number of devices of the group of “k” replacement devices operating during the year.
p_k	The power of the devices of the group of “k” devices distributed to households.
o_k	The average annual operating hours of the devices of the group of “k” devices distributed to households.

For CPA 2535 -0002 to CPA 2535 -0025, value for n_k , p_k and o_k are presented below along with the value for project emissions.

CPA	N_k	p_k	O_k	$EF_{CO_2, ELEC, y}$ (kgCO ₂ /kWh)	Project Electricity Consumption ($E_{PJ, y}$, kWh)	Project Emissions (PE_y , tCO _{2e})
CPA 2535-0002	135,848	23	1.914	0.514	6,249,416.277	3,212.200
CPA 2535-0003	135,299	23	1.914	0.514	6,224,175.691	3,199.226
CPA 2535-0004	135,355	23	1.914	0.514	6,226,731.366	3,200.540
CPA 2535-0005	134,935	23	1.914	0.514	6,207,392.545	3,190.600
CPA 2535-0006	134,909	23	1.914	0.514	6,206,233.270	3,190.004
CPA 2535-0007	158,775	23	1.914	0.514	7,304,137.946	3,754.327
CPA 2535-0008	158,072	23	1.914	0.514	7,271,802.854	3,737.707
CPA 2535-0009	159,399	23	1.914	0.514	7,332,818.305	3,769.069
CPA 2535-0010	159,753	23	1.914	0.514	7,349,109.740	3,777.442
CPA 2535-0011	159,863	23	1.914	0.514	7,354,189.199	3,780.053
CPA 2535-0012	160,274	23	1.914	0.514	7,373,082.308	3,789.764
CPA 2535-0013	160,141	23	1.914	0.514	7,366,949.791	3,786.612
CPA 2535-0014	160,120	23	1.914	0.514	7,366,020.622	3,786.135
CPA 2535-0015	160,212	23	1.914	0.514	7,370,232.856	3,788.300
CPA 2535-0016	160,835	23	1.914	0.514	7,398,882.243	3,803.025
CPA 2535-0017	224,147	23	1.914	0.514	10,311,429.966	5,300.075
CPA 2535-	224,482	23	1.914	0.514	10,326,822.656	5,307.987

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CPA 2535-0019	224,805	23	1.914	0.514	10,341,700.827	5,315.634
CPA 2535-0020	225,346	23	1.914	0.514	10,366,569.240	5,328.417
CPA 2535-0021	225,581	23	1.914	0.514	10,377,417.013	5,333.992
CPA 2535-0022	225,631	23	1.914	0.514	10,379,689.471	5,335.160
CPA 2535-0023	226,516	23	1.914	0.514	10,420,422.215	5,356.097
CPA 2535-0024	123,683	23	1.914	0.514	5,689,788.714	2,924.551
CPA 2535-0025	120,994	23	1.914	0.514	5,566,076.752	2,860.963

The table below outlines the aggregate energy savings from CPA 2535 -0002 to CPA 2535 -0025. Each CPA has saved less than 60 GWh of electricity. Detail energy saving calculation is provided in the CER calculation spreadsheet.

CPA	Baseline Electricity Consumption (E_{BL,y}, kWh)	Project Electricity Consumption (E_{PJ,y}, kWh)	Electricity Savings (kWh)
CPA 2535-0002	20,824,167.89	6,249,416.277	14,574,751.61
CPA 2535-0003	20,798,927.59	6,224,175.691	14,574,751.90
CPA 2535-0004	20,801,483.55	6,226,731.366	14,574,752.19
CPA 2535-0005	20,782,128.41	6,207,392.545	14,574,735.87
CPA 2535-0006	20,780,962.83	6,206,233.270	14,574,729.56
CPA 2535-0007	24,437,405.16	7,304,137.946	17,133,267.21
CPA 2535-0008	24,405,054.24	7,271,802.854	17,133,251.39
CPA 2535-0009	24,466,103.36	7,332,818.305	17,133,285.06
CPA 2535-0010	24,482,385.71	7,349,109.740	17,133,275.97
CPA 2535-0011	24,487,506.24	7,354,189.199	17,133,317.04
CPA 2535-0012	24,506,337.07	7,373,082.308	17,133,254.76
CPA 2535-0013	24,500,225.08	7,366,949.791	17,133,275.29
CPA 2535-0014	24,499,334.63	7,366,020.622	17,133,314.01
CPA 2535-0015	24,503,510.84	7,370,232.856	17,133,277.99
CPA 2535-0016	24,532,114.78	7,398,882.243	17,133,232.54
CPA 2535-0017	34,029,971.03	10,311,429.966	23,718,541.06
CPA 2535-0018	34,045,306.39	10,326,822.656	23,718,483.74
CPA 2535-0019	34,060,154.74	10,341,700.827	23,718,453.91
CPA 2535-0020	34,085,114.03	10,366,569.240	23,718,544.79
CPA 2535-0021	34,095,905.41	10,377,417.013	23,718,488.40
CPA 2535-0022	34,098,205.37	10,379,689.471	23,718,515.89
CPA 2535-0023	34,138,900.83	10,420,422.215	23,718,478.61
CPA 2535-0024	18,663,263.62	5,689,788.714	12,973,474.91
CPA 2535-0025	18,152,892.51	5,566,076.752	12,586,815.76

H.3. Calculation of leakage

>> Leakage is zero as all incandescent bulbs received in exchange for CFLs were destroyed.

H.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Specific-case CPA reference number	Baseline emissions or baseline net GHG removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	GHG emission reductions or net GHG removals by sinks (tCO ₂ e) achieved in the monitoring period		
				Up to 31/12/2012	From 01/01/2013	Total amount
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			0	0	223,989	223,989

H.5. Comparison of GHG emission reductions or net GHG removals by sinks with estimates in the included CPA-DD(s)

Specific-case CPA reference number	Value estimated in ex ante calculation in the included CPA-DD(s)	Actual values achieved by the specific-case CPA(s) during this monitoring period
2535-0002	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	7,491
2535-0003	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	7,491
2535-0004	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	7,491
2535-0005	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	7,491
2535-0006	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	7,491
2535-0007	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	8,806
2535-0008	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	8,806
2535-0009	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	8,806
2535-0010	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/08/16)	8,806
2535-0011	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	8,806

2535-0012	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	8,806
2535-0013	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	8,806
2535-0014	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	8,806
2535-0015	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	8,806
2535-0016	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	8,806
2535-0017	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	12,191
2535-0018	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	12,191
2535-0019	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	12,191
2535-0020	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	12,191
2535-0021	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	12,191
2535-0022	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	12,191
2535-0023	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	12,191

2535-0024	82,409 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	6,668
2535-0025	79,953 (Value estimated based on 1045 days, between 22/05/13 to 31/03/16)	6,469
Total	1,895,407	223,989

H.6. Remarks on difference from the estimated value in the included CPA-DD(s)

>> The actual emission reductions for this monitoring period is lower than the estimated value in the CPA-DD for all CPAs (i.e. CPA 2535-0002 to CPA 2535-0025).

Appendix 1. Contact information of coordinating/managing entity and/or responsible persons/entities

Coordinating/managing entity and/or responsible person/entity	<input checked="" type="checkbox"/> Coordinating/managing entity <input type="checkbox"/> Person/entity responsible for completing the CDM-MR-FORM
Organization name	Cool nrg International Pty Ltd
Street/P.O. Box	27 Best Street,
Building	
City	Fitzroy North,
State/Region	Victoria
Postcode	3068
Country	+61410479178
Telephone	
Fax	
E-mail	chris@coolnrg.com
Website	http://www.coolnrg.com/
Contact person	
Title	
Salutation	Mr
Last name	Tierney
Middle name	
First name	Chris
Department	
Mobile	
Direct fax	
Direct tel.	
Personal e-mail	chris@coolnrg.com

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