Verification and certification report form for CDM programme of activities

(version 02.0)

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

BASIC INFORMATION		
Title and UNFCCC reference number of the programme of activities (PoA)	Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda- 10186	
Version number(s) of the PoA-DD(s) to which this report applies	9.0	
Version number of the verification and certification report	2.0	
Completion date of the verification and certification report	14/06/2019	
Monitoring period number and duration of this morning period	MP: 1 Duration: 28/08/2015-03/05/2017 (inclusive of both days)	
Number and version number of the monitoring report to which this report applies	Number: 1 Version: 5.0	
Coordinating/managing entity (CME)	Rural Electrification Agency Uganda	
Host Parties	Host Parties of the PoA	Is this a host Party to a CPA covered in this report? (yes/no)
	The Republic of Uganda	Yes
Applied methodologies and standardized baselines	- AMS-I.L Version 3 Electrification of Rural Communities Using Renewable Energy - AMS-III.AR Version 5 Substituting Fossil Fuel Based Lighting with LED/CFL Lighting Systems - AMS-III.BB Version 2 Electrification of Communities Through Grid Extension or Construction of New Mini-Grids	
Mandatory sectoral scopes linked to the applied methodologies	AMS-I.L: 1 AMS-III.AR: 1 AMS-III.BB: 2	
Conditional sectoral scopes linked to the applied methodologies, if applicable	AMS-I.L: 13, 15 AMS-III.AR: - AMS-III.BB: -	
Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report	12,833 tCO_2e	
Certified amount of GHG emission	**2,210 tCO_2e**	

reductions or GHG removals for this monitoring period for the included CPAs covered in this report	
Name and UNFCCC reference number of the DOE	TÜV NORD CERT GmbH E-0022
Name, position and signature of the approver of the verification and certification report	 Rami Kunal Senior Assessor

SECTION A. Executive summary

The International Bank for Reconstruction and Development has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the programme of Activities titled

"Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda"

with regard to the relevant requirements for CDM project activities.

This verification covers the monitoring period as stated on title page (including both days).

The programme of activities was registered with UNFCCC on 28/08/2015 and registration ID 10186 with a renewable crediting period. The first crediting period is from 28/08/2015 to 27/08/2022 (including both dates). The PoA duration is from 12/08/2014 to 11/08/2042 (including both days).

The CPA 10186-0001 was included on 28/08/2015 with a fixed 10 year crediting period from 28/08/2015 to 27/08/2025. CPA 10186-0001 is the only CPA covered by this monitoring period.

The programme of activities supports the implementation of a variety of possibilities for electrification of households and/or non-households such as SMEs or public buildings and institutions, including (A) electrification of consumers to the national/regional grid, (B) battery charged LED or CFL lightning systems and (C) installation of renewable electricity generation systems.

Currently two CPAs are included under the corresponding PoA. The two included CPAs cover all 13 service territories in Uganda. With CPA 1 covering 1 and CPA 2 covering the remaining 12 service territories. For this first monitoring period, one (1) Service Provider (KIL) has provided related monitoring data to determine the emission reductions. Table A-2 below summarizes the respective service providers, number of connections, electricity consumed, and estimated emission reductions.

The Service Providers (SP) track the number of connections made in an electronic database. End-user information, meter number, and GPS coordinates (when available) are recorded in the system and reported to the CME.

Specific CPA Types B and C have not been included under the PoA to date.

Details of the project location are given in table A-1 below:

Table A-1: Project Location

No.	Project Location
Host Country	The Republic of Uganda
Region:	1 Service Territory CPA10186-0001 (Western Service Territory)
CME address:	Rural Electrification Agency Uganda Plot 10, Windsor Loop-Kololo P.O. Box 7317, 2nd Floor, House of Hope Kampala
Latitude:	
Longitude:	

Basic technical details of the project are summarized in table A-2.

Table - A-2: Technical data of the project activity

Service Provider	Total Connections	Power Consumed (kWh)	To be considered under this monitoring period

KIL	3,522	1,064,502	Yes
Total	**3,522**	1,064,502	

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved corresponding CDM methodologies,
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader/ Technical Expert	IR	Winter	Stefan	TÜV NORD CERT GmbH	x	x	x	x
2.	Team member	EI	Lubanga	David	-	x	x	x	x

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/Approver	IR	Rami	Kunal	TÜV NORD CERT GmbH

SECTION C. Application of materiality in conducting the verification

C.1. Consideration of materiality in planning the verification

In order to ensure a complete, transparent and timely execution of the verification task the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion.

Various tools have been established in order to ensure an effective verification planning.

Materiality Threshold

The verification is based on the materiality threshold identified in table C-1 below:

Table C-1: Applied Materiality Threshold

	Threshold	Related to
☐	**0.5 %**	**Emission reductions or removals for registered CDM project activities achieving a total emission reduction or removal equal to or**

	Threshold	Related to
		more than 500,000 tonnes of carbon dioxide equivalent per year[1];
☐	**1 %**	**Emission reductions or removals for registered CDM project activities achieving a total emission reduction or removal of between 300,000 and 500,000 tonnes of carbon dioxide equivalent per year;**
☐	**2 %**	**Emission reductions or removals for registered large-scale CDM project activities achieving a total emission reduction or removal of 300,000 tonnes of carbon dioxide equivalent per year or less;**
☐	**5 %**	**Emission reductions or removals for registered small-scale CDM project activities other than registered CDM project activities covered under next category below;**
☒	**10 %**	**Emission reductions or removals for the type of registered CDM project activities referred to in decision 3/CMP.6, paragraph 38 and 39 (referred to as microscale project activities).**

Strategic Analysis

At the beginning of the verification the verification team leader has assessed the nature, scale and complexity of the verification tasks by carrying out a strategic analysis of all activities relevant to the project activity. The team leader has collected and reviewed the information relevant to assess that the designated verification team is sufficiently competent to carry out the verification and to ensure that it is able to conduct the necessary risk analysis.

Risk analysis and detailed audit testing planning

For the identification and assessment of potential reporting risks and to determine the necessary detailed audit testing procedures for residual risk areas the following table is used.

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Transfer of data by CME staff from SPs monthly sales reports to the sales database at the CME Offices	Low	Human error during transfer of data into the sales database	Thorough cross-check required on the transfer of data from monthly sales reports. This is cross-checked by the CDM manager Periodic monitoring at the SPs' offices
2.	Transfer of data from database to excel ER spreadsheet	Low	Human error during transfer of data for BE and ER calculations	Through check of sampled number of records
3.	Misstatements in data collected and/or in database	Medium	Information mistakenly collected and therefore wrongly entered into the system	Through check of sampled number of records

On the basis of the risk analysis the verification has been planned. A detailed audit / verification plan has been prepared and submitted to the project participant(s) in due time before the site visit.

C.2. Consideration of materiality in conducting the verification

Based on the verification planning the verification has been carried out. The concept of materiality has been considered. A breakdown of the chosen approaches is included in the following table.

Parameter	*Approach+*	*Errors**	*Findings*	*Corrected*	*Remaining*

[1] A year refers to a period of 12 consecutive months.

		detected	*reference*		*verification risk*
$EC_{T1M,j,y}$	COM	☒	CL 01	☒	Not material
$EC_{T2,j,y}$	COM	☒	CL 01	☒	Not material
Efgrid,		☒		☒	Not material
f_{HH}	COM	☒		☒	Not material
Proportion of N_y and M_y having access to the grid	CDC	☒	-	☒	Not material
A_{def}	COM	☒		☒	Not material
L_C	COM	☒		☒	Not material
Aggregate					Materiality threshold not exceeded

**) incl. omissions and misstatements*

+) Verification Approaches:

CDC: Complete data check of data including all data aggregation steps
NDC: Non-complete data check – omissions not material
SPL: Sampling approach (all data available)
ASP: Acceptance Sampling
COM: Data check at higher data aggregation levels and sampling at original data levels

The verification was basically carried out as per the verification plan. However, based on the actual situation on-site and the errors, omissions and misstatements identified during the verification minor deviations from the original plan occurred. However, due to the insignificance no major revision of the overall plan was required

SECTION D. Means of verification

D.1. Desk/document review

During the desk review all documents initially provided by the client and publicly available documents relevant for the verification were reviewed. The main documents are listed below:

- the last revision of the PoA-DD including the monitoring plan/PoA-DD/,
- the last revisions of the CPA-DD/CPA-DD/
- the last revision of the CPA validation report/VAL/,
- the monitoring report, including the claimed emission reductions for the PoA/MR/,
- the emission reduction calculation spreadsheet/ER/.

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

D.2. On-site inspection

Duration of on-site inspection: 23/05/2018~29/05/2018				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Introductory meeting and interviews with CME representatives	Rural Electrification Agency Offices	23/05/2018	Stefan Winter, David Lubanga
	- Interviews with UMEME management representatives & staff - Discussion of required documents and site location checks	UMEME Main Offices	23/05/2018	Stefan Winter, David Lubanga
2.	- Interviews with PACMECS representatives & staff - Check of billing system - Check of records & compare with ER data applied - Check of data management system	PACMECS Offices	24/05/2018 and 25/05/2018	Stefan Winter

3.	- Interviews with KRECS representatives & staff - Check of billing system - Check of records & compare with ER data applied - Check of data management system - Check of physical installations at sample number of households under KRECS - Interviews with sampled end-users	KRECS Offices and Households	25/05/2018	David Lubanga
4.	- Interviews with BECS representatives & Staff - Check of billing system - Check of records & compare with ER data applied - Check of data management system - Check of physical installations at sample number of households under BECS - Interviews with sampled end-users	BECS Offices and Households	26/05/2018	David Lubanga
5.	- Interviews with KIL representatives & staff - Check of billing system - Check of records & compare with ER data applied - Check of data management system - Check of physical installations at sample number of households under KIL - Interviews with sampled end-users	KIL Offices and Households	27/05/2018	David Lubanga
6.	- Interviews with UMEME representatives & staff - Check of billing system - Check of records & compare with ER data applied - Check of data management system - Interviews with sampled end-users	UMEME Service Offices	28/05/2018	Stefan Winter
7.	- Check of physical installations at sample number of households under UMEME - Interviews with sampled end-users	Households	29/05/2018	Stefan Winter
8.	Final Meeting with CME - Audit results - ER Calculations - PRC - Timelines	Rural Electrification Agency Offices	29/05/2018	Stefan Winter David Lubanga

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Belenky	Lucas	Ci-dev/Consultant/**IM01**/	23/05/2018 – 29/05/2018	• Project history • Implementation • General Organization and structure • Partners • PRC • Monitoring plan • ER Calculations	Stefan Winter David Lubanga
2.	Kodet	Connie	Financial & Economic Analyst/REA /IM01/	23/05/2018	• Financing mechanisms • Other SP support • Billing systems • Relationship between REA and SPs • Implementation	David Lubanga
3.	Kato	Moses	Environmental Officer/REA/IM02/	23/05/2018	Regulatory issues	David Lubanga
4.	Nantume	Deborah	P&TME/REA/IM02/	23/05/2018	-	David Lubanga
5.	Kimbogwe	Denis	CPO/REA/IM02/	23/05/2018	-	David Lubanga
6.	Birikadde	Grace	ES/REA/IM02/	23/05/2018	• Roles and responsibilities • Billing systems • Territories covered • Data aggregation	David Lubanga

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
7.	Wamala	Adam	Programme Coordinator/ UMEME/IM02/	23/05/2018	- Territories covered - Agreement with CME - Programs implemented - Financing - Technical support - Connection process - Transmission lines built (if applicable) - Billing system - Data capture - Data aggregation - Management system - Roles and responsibilities	David Lubanga
8.	Serwadda	Isaac	Projects Manager/ UMEME	23/05/2018	-	David Lubanga
9.	Kimbowa	Dansturn	Project Engineer/ UMEME	23/05/2018	-	David Lubanga
10.	Selware	Stephen	Project Engineer/ UMEME	23/05/2018	-	David Lubanga
11.	Biningi	Godfrey	IT Systems Admin/KRECS	25/05/2018	- Billing system - Customer details - Data entry and management - Data integrity	David Lubanga
12.	Mwesige	Chris	Cashier/KRECS	25/05/2018	-	David Lubanga
13.	Musoke	Abdallatifu	KRECS/Finance Manager	25/05/2018	Purchasing mechanism	David Lubanga
14.	Ateneka Lilian	Moses	Cashier/KRECS	25/05/2018	-	David Lubanga
15.	Lole	Sowedi	Technical Manager/KRECS	25/05/2018	• Connections and transmissions • Monitoring and maintenance	David Lubanga
16.	Mujuni	Kaiungi	Linesman/KRECS	25/05/2018	• Connections and transmissions • Monitoring and maintenance	David Lubanga

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
17.	Mame	Charles	General Manager/KRECS	25/05/2018	• KRECS history • Membership • Costs of connections • Type of customer • Connection loads • Payment modes • Implementation process • MoU with REA • Transmission lines • Billing system	David Lubanga
18.	Baseka	Danny	PRMO/KRECS	25/05/2018	-	David Lubanga
19.	Twikinize	Johnson	Technical Officer/KRECS	25/05/2018	-	David Lubanga
20.	Kabagabu	Beatrice	Owner/Good Samaritan Shop	25/05/2018	• Previous energy use • Connection process • Names • Date of connection • Consumption • Mode of purchase • Reliability • Data collected	David Lubanga
21.	Nyanya	Patricia	Household	25/05/2018		
22.	Kahunde	Doreen	Household	25/05/2018		
23.	Mandy	Florence	Owner/Gilman	25/05/2018		
24.	Kembabazi	Mary	Household	25/05/2018		
25.	Achen	Caroline	Household	25/05/2018		
26.	Rwabuhoro	Fredrick	Household	25/05/2018		
27.	Muhanuzi	Patrick	Household	25/05/2018		
28.	-	Nicholas	Household	25/05/2018		
29.	Mugidde	Esther	Household	25/05/2018		
30.	Asiimwe	Julliet	Household	25/05/2018		
31.	Ategeka	Nicholas	Household			
32.	Akanterana	E	Owner/stock Shop	25/05/2018		
33.	Kabusina	Leah	Household	25/05/2018		
34.	Birungi	Godfrey	Shop	25/05/2018		
35.	Bright	Kellen	Shop	25/05/2018		
36.	Ssekago	Abdullah	Household	25/05/2018		
37.	Agaba	Ismail	Assistant Linesman/BECS	26/05/2018	-	David Lubanga
38.	Ryamukama	Stephen	Technical Officer/BECS	26/05/2018	-	David Lubanga
39.	Biira	Florence	Accounts/BECS	26/05/2018	-	David Lubanga
40.	Tibasima	Happy	ICT Officer/BECS	26/05/2018	• Billing system	David Lubanga
41.	Kyomugisha	Beatrice	Daughter/Household	26/05/2018	• Previous energy use • Connection process • Names	David Lubanga
42.	Ssalongo	Moses	Manager/Bluesky Lodge	26/05/2018		
43.	Byekkiaso	Brian	Nephew/Household	26/05/2018		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
44.	Matali	Boniface	Business Owner	26/05/2018	• Date of connection • Consumption • Mode of purchase • Reliability • Data collected	
45.	Byamaka	Ded	Owner/Guest House	26/05/2018		
46.	Mulindwa	Dan	Household	26/05/2018		
47.	Kabatooro	-	Household	26/05/2018		
48.	Kudala	Nubukusya	Household	26/05/2018		
49.	Birungi	Scovia	Household	26/05/2018		
50.		Mary	Household	26/05/2018		
51.	Byamukama	Jonas	Household	26/05/2018		
52.	Bamwiisibye		Household	26/05/2018		
53.	Tibekmata	Joseph	Household	26/05/2018		
54.	Kugumisiriria	John	Household	26/05/2018		
55.	Kamalabe	Costa	Household	26/05/2018		
56.	Kabugho	Zubeda	Household	26/05/2018		
57.	Saturday	Johnson	Household	26/05/2018		
58.	Masika	Annette	Household	26/05/2018		
59.	Nsubuga	Thembo	Owner/Salon	26/05/2018		
60.	Haurat	-	Daughter/Household	26/05/2018		
61.	Biira	Jehu	Owner/Shop	26/05/2018		
62.	Biira	Jusi	Household			
63.	Bwambale	Zakariah	Household	26/05/2018		
64.	Mumbere	Joseph	Household	26/05/2018		
65.	Kaherwa	Jackline	Household	26/05/2018		
66.	Masereka	Stephen	Household	26/05/2018		
67.	Muhindo	Julius	Head of Finance/KIL	27/05/2018	- Territories covered - Agreement with CME - Programs implemented - Financing - Technical support - Connection process - Transmission lines built (if applicable) - Billing system - Data capture - Data aggregation - Management system - Roles and responsibilities	David Lubanga

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
68.	Kitatamire	Zolfa	Senior Accounts Assistant/KIL	27/05/2018	-	David Lubanga
69.	Nzembule	Simon	Electrical Inspector/KIL	27/05/2018	-	David Lubanga
70.	Mucunguzi	Donozio	ICT Officer/KIL	27/05/2018	- Territories covered - Agreement with CME - Programs implemented - Financing - Technical support - Connection process - Transmission lines built (if applicable) - Billing system - Data capture - Data aggregation - Management system - Roles and responsibilities	David Lubanga
71.	Masereka	Eric	Stores Assistant/KIL	27/05/2018	-	David Lubanga
72.	Masika	Immaculate	Storekeeper /KIL	27/05/2018	-	David Lubanga
73.	Asa	Graham	Commercial Services Officer/KIL	27/05/2018	-	David Lubanga
74.	Bwambale	Kathaliko	Compliance Officer/KIL	27/05/2018	-	David Lubanga
75.	Mberemo	Nathan	Household	27/05/2018	• Previous energy use • Connection process • Names • Date of connection • Consumption • Mode of purchase • Reliability • Data collected	David Lubanga
76.	Babulya	Apollo	Household	27/05/2018		
77.	Nguru	David	Household	27/05/2018		
78.	Buluku	Yona	Relative/Household	27/05/2018		
79.	Bulu	Kuyona	Household	27/05/2018		
80.	Sikulaba	Scovia	Wife/Household	27/05/2018		
81.	Dorokasi	Muhindo	Household	27/05/2018		
82.	Kiminywa	William	Household	27/05/2018		
83.	Masereka	Robert	Household	27/05/2018		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
84.	Munaba	Joyce	Tenant/Business	27/05/2018		

D.4. Sampling approach

☐	No sampling approach has been used by the VT to verify the monitored parameters
☒	A sampling approach has been applied by the VT for the following monitored parameter(s):

Parameter	Sampling approach [1)]	Sampling Type [2)]	Population	Sample Size
$EC_{T1,j,y}$ and $EC_{T2,j,y}$	*SiRS and SS*	*PS*	4,045[2]	254

[1)] *Sampling Approaches:*

SiRS: *Simple Random Sampling*
StRS: *Stratified Random Sampling*
SS: *Systematic Sampling*
CS: *Cluster Sampling*
MSS: *Multi-stage Sampling*

[2)] *Sampling Types:*

AS: *Acceptance Sampling*
PS: *Parameter Sampling*
COM: *Full data check at higher data aggregation levels and sampling at original data levels*

Verifier's Action

The CME has not applied sampling to determine the monitored parameters. In line with §25 of the Sampling and surveys for CDM project activities and programme of activities, version 7.0, the verifier conducted the verification of sampling results with the following steps.
During the on-site assessment, a sampling approach has been used by the assessment team to verify the reported values for the above listed monitored parameters of $EC_{T1,j,y}$ and $EC_{T2,j,y}$ as the set of corresponding data could not be checked with reasonable efforts from the original data level to the reporting level and a quantitative or semi-quantitative test was not possible.

The sampling approach is conducted according with "Guidelines for Sampling and Surveys for CDM Project Activities and Programme Activities" and the "Standard for Sampling and Surveys for CDM Project Activities and Programme Activities". As the population is relatively homogeneous with respect to the object of the sampling effort, simple random sampling method is adopted for verification of the parameters.

Sample Size Calculation
According to "Best practices examples focusing on sample size and reliability calculations", the following equation is applied for sample size calculation.

$$n \geq \frac{z^2 \times N \times V}{(N-1) \times precision^2 + z^2 \times V}$$

Where:

$$V = \frac{p \times (1-p)}{p^2}$$

n	Number of elements to be sampled.
N	Total number of elements in the population, (see table below for each of the parameters)
p	Proportion: Set to 0.5 based on the very conservative estimation that 50% of the values checked are found to be incorrect.
z	Constant referring to the level of confidence (for this case 1.96 for 95% and 1.645 for 90% as per §10 of the Standard "Sampling and surveys for CDM project activities and programmes of activities").

[2] As per published MR

precision Required precision (for this case 10%=0.1 as per §10 of the Standard "Sampling and surveys for CDM project activities and programmes of activities").

For the data check 95/10 approach has been used which results in 254 samples to be checked. As the initial population of 4,045 contains households as well as non-household connections the total sample size of 254 has been distinguished to these two types pro rata. As per provided worksheet the SP KIL provided 3,988 connections to households and only 57 to non-households. Therefore 98.5% of the connections have been provided to households. Due to this 250 samples (254/4,045 x 3,988) should be taken from households and 4 from non-households (4/4,045 x 57). During the on-site validation, almost 300 records (customer agreement contracts and data sets in the billing system) were checked by the assessment team. About 295 from households and 5 from non-HH. Hence, more than the required number of records have been verified. Based on the values from the SPs records, and based on the underlying original data, the assessment team calculated the data aggregation completely independent from the calculation provided by the CME and compared it with the provided ER Excel spreadsheet.

Further, a sample number of HHs and non-HH have been visited in order to crosscheck data provided as crosschecked with the billing system and the customer agreement contracts. DOE focused whether a physical installation has been conducted, address details, the meter number is correct, the installation is operating and GPS coordinates are as per worksheet provided. Further interviews with HH members have been conducted to crosscheck timing of connection, name and whether there has been any problems with the connections (e.g. meter changes due to failure). As this is a crosscheck of the actual data used for emission reduction calculation a 90/10 approach has been applied along with a 95% proportion. This results in a sample number of 20. Again pro rata approach has been applied to HH and non-HH, which results in 19.7 (20 if rounded) visits to HH and 0 to non-HH. However at least one non-HH is considered to be visited and 19 HHs. Accordingly, actual site inspections have been conducted.

Furthermore, no major discrepancies were noted between the records at the SPs office and the data checked from the CME records in the office and provided for verification in the monitoring report and emission reductions excel spreadsheet. However related findings have been raised.

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

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
General			-
Compliance of the monitoring report with the monitoring report form	-	1	-
Remaining forward action requests from validation and/or previous verification	-	-	2
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	-	-	-
Post-registration changes	-	-	-
• Temporary deviations from the registered monitoring plan, applied methodology or applied standardized baseline	-	-	-
• Corrections	-	-	-
• Inclusion of a monitoring plan	-	-	-
• Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools	-	-	-
• Changes to the programme design or project design	-	-	-
• Change of coordinating/managing entity	-	-	-
• Changes specific to afforestation and reforestation activities	-	-	-
Component project activities			
Compliance of the CPA implementation with the included	-	1	-

CPA design document			
Post-registration changes	-	1	-
• Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline	-	-	-
• Corrections	-	-	-
• Changes to the start date of the crediting period of component project activities	-	-	-
• Inclusion of a monitoring plan	-	-	-
• Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools	-	-	-
• Changes to the programme design of project design	-	-	-
• Changes specific to afforestation and reforestation component project activities	-	-	-
Compliance of the registered monitoring plan with the methodology including applicable tool(s) and standardized baseline	-	-	-
Compliance of monitoring activities with the registered monitoring plan	-	-	-
• Data and parameters fixed ex ante or at renewal of crediting period	-	-	-
• Data and parameters monitored	-	1	-
• Implementation of sampling plan	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	1	1	-
• Calculation of baseline GHG emissions or baseline net GHG removals by sinks	-	-	1
• Calculation of project GHG emissions or actual net GHG removals by sinks	-	1	-
• Calculation of leakage GHG emissions	-	1	-
• Summary of calculation of GHG emission reductions or net GHG removals by sinks	-	-	-
• Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA	-	-	-
• Remarks on difference from estimated value in included CPA	-	-	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (Back-up system)	-	-	1
Total[3]	**1**	**7**	**4**

SECTION E. Verification findings

E.1. General

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

Means of verification	A draft monitoring report was submitted to the verification team by the project participants. The DOE has made this report publicly available prior to the start of the verification activities. No comments were received. By means of the UNFCCC website it has been checked whether the latest applicable

[3] Includes PRC Assessment findings

	MR template CDM-PoA-MR-FORM has been used. Further it has been checked whether the latest instructions for filling out the MR template have been followed. Every section has been checked against the respective guidance. The following sources of information have been used in this context: • /MR/ • /MRT/ • /unfccc/	
Findings	☒	The latest reporting template CDM-MR-FORM as listed on the UNFCCC website has been used for the Monitoring Report to be uploaded.
	☐	The latest instructions for filling out the MR have been followed. No adverse finding has been identified in the course of this verification.
	☒	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:
		CAR 01, CAR 02
Conclusion	☐	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	☒	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	The verification team has checked all sections of the MR and confirms by means of comparing the MR that has been used with the standardized MR template. After appropriate corrections were carried out by the project participant it can be confirmed the latest instructions for filling out the MR have been followed.	

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

During the validation the validating DOE might have raised issues that could not be closed or resolved during the validation stage. For this purpose, FARs might have been raised. Likewise, FARs might have been raised in the course of previous verifications.

In the course of this verification the latest version of the PoA-DD/PoA-DD/ and the latest CPA-DD and their respective validation reports have been checked in order to identify any remaining forward action requests. For the current monitoring period the following applies:

(i) Open issues from validation:

☐	There were no open issues which have been addressed in the latest version of the validation report.
☐	All open issues from the validation have been appropriately addressed in the context of previous verifications.
☒	All issues related to the validation have been appropriately addressed in the course of the current monitoring period (for details please refer to appendix 4)
☐	The following issues related to the validation have **not** yet been appropriately addressed (for details please refer to appendix 4):

(ii) Open issues from previous verifications:

☒	N/A – as this is the first monitoring period for this CDM project activity.
☐	There were no open issues which have been addressed in the previous verification report
☐	All issues related to the previous verification have been appropriately addressed in the course of the current monitoring period (for details please refer to appendix 4)
☐	The following issues related to the previous verification have **not** yet been appropriately addressed (for details please refer to appendix 4):
	N/A

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

Title and UNFCCC reference number of the CPA included in the PoA as of the end of this monitoring period	Is the CPA considered for this verification? (yes/no)	The date when the CPA was included	Version of the PoA-DD	Confirmation that a request for issuance including the CPA has been published for the previous monitoring period (Y/N)
10186-0001	Y	28/08/2015	9.0	N
10186-0002	N	04/05/2017	9.0	N

E.2. Programme of activities

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

Means of verification	By means of an in-depth review of the registered and approved revised PDDs in its latest form as downloaded from the UNFCCC project page site and the checks carried out during the on-site visit an assessment has been carried out whether the project has been implemented and operated in line with the latest approved version of the PoA-DD. The verification team has checked the information in the monitoring report and compared against the registered PoA-DD. During the onsite inspection, the verification team has checked the project location, implementation, technology applied, project equipment, and monitoring system and compared against the information in the registered PoA-DD. Interviews with operational personnel have been carried out, consumption records, equipment / instrument specifications were checked in this context. The following sources of information have been used in this context: • /PoA-DD/ • /MR/ • /IM01/ • /IM02/ • /unfccc/	
Findings	☒	The project has been implemented as described in the latest version of the PDD as well as in section B.1 of the monitoring report. No deviations thereof have been identified in the course of this verification.
	☐	The following deviations from the registered project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section E.4): N/A
	☒	In this context the following CARs, CLs have been raised: CAR 06
	In case of phased implementation:	
	☒	N/A
	☐	The phased implementation has correctly and in sufficient detail been described in the latest version of the PDD.
	☐	The description in section B.1 of the MR differs in content or the level of detail from the latest version of the PDD. However, the description in the MR is correct and reflects the situation during the site inspection.
	☐	The project description in the PDD/MR is not deemed sufficient. The detailed implementation timeline is as follows: N/A

Conclusion	☐	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	☒	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	During the verification an onsite visit was carried out. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipment, as well as the monitoring procedures, the project has been implemented and operated as described in the latest PoA-DD and CPA-DD version.	

E.2.2. Implementation and operation of the management system

Means of verification	By means of an in-depth review of the registered and revised PoA-DD in its latest form, and the checks carried out during the on-site visit an assessment has been carried out whether the project has been implemented and operated in line with the latest approved version of the PoA-DD and whether all physical features of the project are in place. The verification team has checked the information in the monitoring report and compared against the registered PoA-DD. During the onsite inspection, the verification team has checked the project location, implementation, technology applied, project equipment, monitoring system and compared against the information in the registered PoA-DD and CPA-DD. Interviews with relevant personnel have been carried out. The following sources of information have been used in this context: • /PoA-DD/ • /CPA-DD/ • /MR/ • /IM01/ • /IM02/ • /unfccc/	
Findings	☒	The project has been implemented as described in the latest version of the PoA-DD as well as in section B.1 of the monitoring report. No deviations thereof have been identified in the course of this verification.
	☐	The following deviations from the registered project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section E.4): N/A
	☐	In this context the following CARs, CLs have been raised:
	In case of phased implementation:	
	☒	N/A
	☐	The phased implementation has correctly and in sufficient detail been described in the latest version of the PDD.
	☐	The description in section B.1 of the MR differs in content or the level of detail from the latest version of the PDD. However, the description in the MR is correct and reflects the situation during the site inspection.
	☐	The project description in the PDD/MR is not deemed sufficient. The detailed implementation timeline is as follows: N/A
Conclusion	☒	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	☐	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.

Implementation/Management

The CPA covered the extension of the national grid with the goal of electrifying communities who prior to the project activity did not have access to the national grid. The first connection under the CPA was made on 27/06/2015 and the total number of connections to date under the CPAs as per final MR is 4,042. The CME operated the CPA under the PoA. For the CPA, the CPA Implementer and CME are the same entity. The CME has done the following under the CPA:

- Manage the extension of the national grid and connection of households and institutions to the national grid, as implemented by Service Providers governing connections to the national grid in the service territory, by setting connection targets and designating regions of focus within the geographic boundary
- Collect and aggregate the information required for monitoring of the CPA and liaise with the CDM EB during the lifetime of the CPA
- Disperse connection materials to the Service Provider in the CPA boundary in this case Kilembe Investments Limited
- Communicate with households and SMEs/Institutions connected under the project activity during the life of the project concerning monitoring of the activity

The CPA covers one service territory managed by Kilembe Investment Trust (KIL). This Service Provider has been progressively engaged in commercial distribution and sale of grid electricity as a Licensee by the Electricity Regulatory Authority. The Service Provider purchases the energy from Uganda Electricity Transmission Company Limited (UETCL) and sell to the end consumer at a tariff determined by the Electricity Regulatory Authority.

The Service Provider uses the prepayment system with some under the card prepayment system and others have keypad-prepaid meters. The Service Provider records a date of connection for every customer in its database. Only customers with a connection date after the start date of the CPA will be included in the monitoring of the CPA for the purpose of determining the emissions reductions achieved.

Enrolment and Data Collection procedure

Based on the site visit evidence and interviews carried out by the DOE, consumers will first express interest in getting connected. Then the possibility of connection is checked by the SP technicians based on the location of the customer premises (proximity to a distribution line). Relevant forms are completed and a contract is signed by the consumer with the local service provider (SP office). The forms capture customer names and contact details, location, consumer type (HH or SME), and GPS details (where possible). Once a connection is completed, the same information is loaded into the SP billing system and a customer number is automatically generated. The serial number of the meter installed is also included. No purchase of pre-paid vouchers or power consumption is possible without this vital information in the billing system. A specific consumer, depending on consumption patterns will be stepped up or down from three phase to single phase and vice versa.

Therefore, the information on location, level of usage, consumer type is also captured during the actual implementation and monitoring phases, in line with §12 guideline of the AMS-III.BB.

The purpose of the CPAs is to provide access to electricity to households in the CPA boundaries through grid connection to a national/regional grid. Carbon revenues earned under the CPAs is used to:

- Finance grid connections; and
- Build capacity for the provision of the supported technologies/measures within the CPA boundary; and
- Educate consumers and increase awareness of the availability and proper

	use of the technologies/measures to be implemented under the CPA. Roles and responsibilities for all CME staff have been adequately defined. Training of stuff in matters CDM is also managed by the CME. The CME operates and manages a centralized electronic data management system that stores all monitoring information shared by SPs as extracted from their respective billing systems. The CME is responsible for implementing QA/QC procedures in the management of the electronic database, to ensure data accuracy within the database.

E.2.3. Post-registration changes

E.2.3.1. Temporary deviations from the registered monitoring plan, applied methodology or applied standardized baseline

It has been checked whether Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM) have been applied during this monitoring period. The result is summarized in the table below.

☒	No Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM) have been submitted to the UNFCCC prior to the current monitoring period.		
☐	The following TDfrMP or TDfMM have been approved or are under approval by the UNFCCC		
	1	Title	
		Status	☐ under approval; ☐ approved (approval No.:)
		Appr.date	
		Ref. No.	
	2	Title	
		Status	☐ under approval; ☐ approved (approval No.:)
		Appr.date	
		Ref.No.	
☒	During the verification of the current MP no need for a TDfrMP or TDfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
☐	An approval of the following TDfrMP or TDfMM is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.		
	1	Issue:	
	2	Issue:	
☐	The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

E.2.3.2. Corrections

It has been checked whether any corrections to CPA information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☐	During the verification of the current MP no need for corrections has been identified.		
☒	The following corrections have been applied:		
	1.	Issue:	Meter number has been included as a unique identifier. Therefore, connections can be uniquely identified using meter numbers or GPS coordinates. The relevant

			eligibility criteria have been revised to be in line with this addition.
	2.	Issue:	References to the "Guidelines on the demonstration of additionality of small-scale project activities Version 9.0" has been removed from section I.1 of Generic CPA Type B and Generic CPA Type C, as additionality is demonstrated at the PoA level.
	3.	Issue:	Further editorial changes have been effected in various sections of the PoA-DD as the latest PoA-DD template has been adopted.
	It is confirmed that the updated / corrected information is an accurate reflection of the actual project information and that the corrected parameters are in accordance with the applied methodology and the monitoring plan.		
	☒ A related post registration change has been submitted prior to the issuance request. The approval has been received on 13/01/2019 via approval number PRC-10186-002. ☐ A related post registration change is submitted along with this issuance request. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.		

E.2.3.3. Inclusion of a monitoring plan

☐	N/A - as this monitoring plan was part of the registered PDD
☐	In line with PS § 182 the PP has forwarded a monitoring plan to the DOE for validation. No prior approval of the monitoring plan was required as the PP in line with PS § 182 wished to submit the monitoring plan together with the request for issuance for the first monitoring period. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.
☒	In line with § 282 the PP submitted a monitoring plan prior to the submission of the request for issuance for validation to the DOE. A DOE has assessed the monitoring plan in line with related VVS requirements and submitted a related PRC report for prior approval. The approval has been received on 13/01/2019 via approval number PRC-10186-002.

E.2.3.4. Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools

It has been checked whether any permanent changes from the registered monitoring plan (PCfrMP) or applied methodologies (PCfMM) including standardized baselines (PCfSB) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☐	No PCfrMP, PCfMM or PCfSB have been submitted to the UNFCCC prior to the current monitoring period		
☒	The following PCfrMP, PCfMM or PCfSB have been approved or are under approval by the UNFCCC		
	1	Issue	As per §34 of the applied methodology AMS.III-BB version 2.0, project emissions are emissions associated with the generation of electricity supplied to the project activity end use facilities. Calculated as follows: $PE_y = \left(ED_{tot,y} * EF_{grid,CO2,y} \right) \div \left(1 - TL_{grid} \right)$ Where PE_y Project emissions from electricity generation in year y (tCO2)

$ED_{tot,y}$ Total electricity delivered to all new and existing consumers (MWh)

$EF_{grid,CO2,y}$ Emission factor of the project electricity system in year y (tCO2/MWh)

TL_{grid} Transmission and distribution losses in the project activity electricity system supplying the project activity (%)

''If the project activity involves connection to an existing national or regional grid the emissions factor is determined by ranking all the power units in the national or regional grid in the decreasing order of GHG intensity. The emissions factor is the weighted average emissions factor of the top 10 per cent most GHG intensive plants in the grid. The emissions factors of the plants shall be calculated based on default plant efficiency provided in the "Tool to calculate the emission factor for an electricity system".

However, the CDM methodology AMS.III-BL version 1.0 prescribes two options in calculating the project emissions, in Table 5.0 for projects involving grid extension:

1. Emissions factor based on:

- top 10 per cent high emission intensive plants in the grid or default emission factor based on the highest carbon intensive fuel in the grid for projects implemented in LDCs/SIDs/Underrepresented countries

2. Project emissions is zero if:

- Grid extension is directly associated with the renewable energy plant

- Fuel mix in grid is greater than 95% renewable and projects are located in LDCs/SIDs/Underrepresented countries

The Republic of Uganda is classified as an LDC country by the United Nations. Therefore, this approach is applicable to Uganda.

Given the challenges of determining the grid emission factors from all the three countries connected to the Uganda electricity system (Uganda imports electricity from Kenya and Rwanda) , a permanent deviation from AMS.III-BB version 2.0, to AMS.III-BL version 1.0 in the calculation of $EF_{grid,CO2,y}$ is proposed in line with Option 3 of §46 of AMS.III-BL version 1.0. This methodology is also applicable for this type of project as per §5 e) of AMS.III-BL version 1.0.

Option 3

''If the projects are implemented in least developed countries (LDCs) or small island developing States (SIDS) or in countries that had 10 or fewer registered CDM project activities as of 31 December 2010 (namely, underrepresented countries (URCs)), the following alternatives are available:

(i) The emission factor of zero can be applied if the share of renewable energy mix is greater than 95% based on immediate three years average historical data

(ii) The emissions factor is determined by the most GHG intensive fuel used in the national or regional grid and the default technology efficiency (lower range) as provided in the "Tool to calculate the emission factor for an electricity system". The default emission factors prescribed in the Table 6 below should be used.

Example for using default emission factor:

a. If a grid has a fuel mix of natural gas, oil and hydro, take the default emission factor of oil;

b. if a grid has a fuel mix of several oil and several coal fired power plants, take the default emission factor of coal.''

Table 6: Default emission factors for determining project emissions

Fuel	Fuel EF from IPCC (kg/TJ)	Efficiency (%)	Default grid EF (tCO2/MWh)
Coal	101,000	36.5	1.0
Natural Gas	58,300	30	0.7
Oil	74,800	30	0.9

			Therefore, in determining $EF_{grid,CO2,y}$ the CME proposes alternatives i) or ii) under Option 3 of AMS.III-BL version 1.0 for the generic CPA Type A in the registered PoA. Sections I.7.1 and I.7.3 have been revised accordingly.
		Status	☐ under approval; ☒ approved
		Appr.date	13/01/2019
		Ref. No.	PRC-10186-002
☐	During the verification of the current MP no need for a PCfrMP, PCfMM or PCfSB has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
☐	An approval of the following PCfrMP, PCfMM or PCfSB is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.		
	1	Issue:	
	2	Issue:	
☐	The following PCfrMP, PCfMM or PCfSB for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

E.2.3.5. Changes to the programme design or project design

It has been checked whether any changes to the CPA design (CoPD) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☒	No CoPD has been submitted to the UNFCCC prior to the current monitoring period		
☐	The following CoPD have been approved or are under approval by the UNFCCC		
	1	Title	
		Status	☐ under approval; ☐ approved
		Appr. date	
		Ref. No.	
	2	Title	
		Status	☐ under approval; ☐ approved
		Appr. date	
		Ref. No.	
☒	During the verification of the current MP no need for a CoPD has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
☐	An approval of the following CoPD.is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.		
	1	Issue:	
	2	Issue:	
☐	The following CoPD for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

E.2.3.6. Change of coordination/managing entity

☒	N/A. The programme of activities is not changing the coordination/managing entity

E.2.3.7. Changes specific to afforestation and reforestation activities

☒	N/A. The programme of activities is not an afforestation and reforestation project activities

E.3. Component project activities

E.3.1. Compliance of the CPA implementation with the included CPA design document

Means of verification	By means of an in-depth review of the registered and revised CPA-DD in its latest form, and the checks carried out during the on-site visit an assessment has been carried out whether the project has been implemented and operated in line with the latest approved version of the CPA-DD. The verification team has checked the information in the monitoring report and compared against the registered CPA-DD. During the onsite inspection, the verification team has checked the project location, implementation, technology applied, monitoring system, and compared against the information in the registered CPA-DD. Interviews with the relevant personnel have been carried out. The following sources of information have been used in this context: • /CPA-DD/ • /MR/ • /AMS/ • /IM01/ • /IM02/ • /unfccc/	
Findings	☒	The project has been implemented as described in the latest version of the PDD as well as in section B.1 of the monitoring report. No deviations thereof have been identified in the course of this verification.
	☐	The following deviations from the registered project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section E.4): N/A
	☒	In this context the following CARs, CLs have been raised: CL 01, CAR 06, CAR 07
	In case of phased implementation:	
	☒	N/A
	☐	The phased implementation has correctly and in sufficient detail been described in the latest version of the PDD.
	☐	The description in section B.1 of the MR differs in content or the level of detail from the latest version of the PDD. However, the description in the MR is correct and reflects the situation during the site inspection.
	☐	The project description in the PDD/MR is not deemed sufficient. The detailed implementation timeline is as follows: N/A
Conclusion	☐	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	☒	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	During the verification an onsite visit was carried out. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipment, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the	

	latest CPA-DD version. However, no specific CPA Type B and C have been included under the PoA to date.

E.3.2. Post-registration changes

E.3.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

It has been checked whether Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM) have been applied during this monitoring period. The result is summarized in the table below.

☒	No Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM).have been submitted to the UNFCCC prior to the current monitoring period.		
☐	The following TDfrMP or TDfMM have been approved or are under approval by the UNFCCC		
	1	Title	
		Status	☐ under approval; ☐ approved (approval No.:)
		Appr.date	
		Ref. No.	
	2	Title	
		Status	☐ under approval; ☐ approved (approval No.:)
		Appr.date	
		Ref.No.	
☒	During the verification of the current MP no need for a TDfrMP or TDfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
☐	An approval of the following TDfrMP or TDfMM is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.		
	1	Issue:	
	2	Issue:	
☐	The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

E.3.2.2. Corrections

It has been checked whether any corrections to CPA information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☐	During the verification of the current MP no need for corrections has been identified.		
☒	The following corrections have been recently notified to the secretariat and as identified during this monitoring period: A related post registration change has been submitted prior to the submission of this issuance request. The approval has been received on 15/03/2019 via approval number PRC-10186-003.		
	1.	Issue:	Meter number has been included as a unique identifier. Therefore, connections can be uniquely identified using meter numbers or GPS coordinates. The relevant eligibility criteria have been revised to be in line with this addition.

	2.	Issue:	References to the "Guidelines on the demonstration of additionality of small-scale project activities Version 9.0" has been removed from section I.1 of Generic CPA Type B and Generic CPA Type C, as additionality is demonstrated at the PoA level.
	3.	Issue:	Further editorial changes have been effected in various sections of the PoA-DD as the latest PoA-DD template has been adopted.
	The following corrections have been already conducted prior to this verification: A related post registration change has been submitted prior to the issuance request. The approval has been received on 15/07/2019 via approval number PRC-10186-001.		
	1.	Issue:	Corrections to the CPA-DD w.r.t. The boundary type A CPAs was originally specified as covering a single service territory within the PoA boundary. As the restriction on CPA size limits has been revised to apply either at the CPA level or at the CPA unit level, the boundary of a type A CPA was revised to cover one or more service territories in the PoA boundary. The boundary of CPAs Type B and C were revised from 2 years to 5 years of technologies implemented since the start date. In addition, the size limit for all CPA types under the PoA was revised to reflect Methodological Tool 19 Version 7 Demonstration of additionality of microscale project activities in the eligibility criteria
	It is confirmed that the updated / corrected information is an accurate reflection of the actual project information and that the corrected parameters are in accordance with the applied methodology and the monitoring plan.		

E.3.2.3. Changes to the start date of the crediting period of component project activities

☐	N/A - as this is not the first verification within the crediting period
☒	The PPs do not intend to change the start date of the crediting period.
☐	As the change in the start date was below the related time period as indicated in PS § 277 and § 278 no prior approval was required but only a notification. This notification has been submitted by the PP without involvement of the DOE. The change and new start date has been checked from the related UNFCCC project webpage.
☐	The PPs intend to change the start date of the crediting period. As the intended change in start date beyond the related time period as indicated in PS § 279 prior approval by the Board is required. For detailed assessment of the change please refer to related PRC validation report. As per assessment in this report the DOE confirms that the change to the start date of the crediting period are in line with the related requirements of the VVS and PS.
☐	The approval to change the start date of the crediting period has been received on DD/MM/YYYY via approval number PRC-XXXX-00Z

E.3.2.4. Inclusion of a monitoring plan

☐	N/A - as this monitoring plan was part of the registered PDD
☒	In line with PoA PS § 182 the PP has forwarded a monitoring plan for the CPA to the DOE for validation. A related post registration change has been submitted prior to this issuance request. The approval has been received on 15/03/2019 via approval number PRC-10186-003.
☐	In line with § 282 the PP submitted a monitoring plan prior to the submission of the request for issuance for validation to the DOE. A DOE has assessed the monitoring plan in line with related VVS requirements and submitted a related PRC report for prior approval. The approval has been received on DD/MM/YYYY via approval number PRC-XXXX-00Z.

E.3.2.5. Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline, or other applied standards or tools

It has been checked whether any permanent changes from the registered monitoring plan (PCfrMP) or applied methodologies (PCfMM) including standardized baselines (PCfSB) or permanent deviation of monitoring from applied methodology (PDfrMM) have been approved prior or during this monitoring period or notified to the secretariat. The result is summarized in the table below.

☒	No PCfrMP, PCfMM or PCfSB have been submitted to the UNFCCC prior to the current monitoring period		
☐	The following PCfrMP, PCfMM or PCfSB have been approved or are under approval by the UNFCCC		
	1	Title	
		Status	☐ under approval; ☐ approved
		Appr.date	
		Ref. No.	
☐	During the verification of the current MP no need for a PCfrMP, PCfMM or PCfSB has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
☐	An approval of the following PCfrMP, PCfMM or PCfSB is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.		
	1	Issue:	
	2	Issue:	
☒	The following *permanent deviation of monitoring from applied methodology* have been applied for which no prior approval is required as per PoA PS §228 and is notified to the secretariat. However, a related post registration change has been submitted prior to the issuance request. The approval has been received on 15/07/2019 via approval number PRC-10186-001.		
	1	Issue:	The following permanent deviation is provided here as the same has been applied to the related PoA-DD and notified accordingly for the respective CPA: As per §34 of the applied methodology AMS.III-BB version 2.0, project emissions are emissions associated with the generation of electricity supplied to the project activity end use facilities. Calculated as follows:- $PE_y = \left(ED_{tot,y} * EF_{grid,CO2,y} \right) \div \left(1 - TL_{grid} \right)$ Where $PE_{,y}$ Project emissions from electricity generation in year y (tCO_2) $ED_{tot,y}$ Total electricity delivered to all new and existing consumers (MWh) $EF_{grid,CO2,y}$ Emission factor of the project electricity system in year y (tCO_2/MWh) TL_{grid} Transmission and distribution losses in the project activity electricity system supplying the project activity (%) "*If the project activity involves connection to an existing national or regional grid the emissions factor is determined by ranking all the power units in the national or regional grid in the decreasing order of GHG intensity. The emissions factor is the weighted average emissions factor of the top 10 per cent most GHG intensive plants in the grid*[4]*. The emissions factors of the plants shall be calculated based on default plant efficiency provided in the "Tool to calculate the emission factor for an electricity system*". However, the CDM methodology AMS.III-BL version 1.0 prescribes two options in

[4] If the grid associated with the project imports electricity from other countries the emission factor shall be the higher among the following two: (i) the weighted average emissions factor of the top 10% most GHG intensive plants in the grid of the host country; and (ii) the weighted average emissions factor of the top 10% most GHG intensive plants in the grid of the exporting country.

calculating the project emissions, in Table 5.0 for projects involving grid extension:

1. Emissions factor based on:
   - top 10 per cent high emission intensive plants in the grid or default emission factor based on the highest carbon intensive fuel in the grid for projects implemented in LDCs/SIDs/Underrepresented countries
2. Project emissions is zero if:
   - Grid extension is directly associated with the renewable energy plant
   - Fuel mix in grid is greater than 95% renewable and projects are located in LDCs/SIDs/Underrepresented countries

The Republic of Uganda is classified as an LDC country by the United Nations[5]. Therefore, this approach is applicable to Uganda.

Given the challenges of determining the grid emission factors from all the three countries connected to the Uganda electricity system (Uganda imports electricity from Kenya and Rwanda)[6], a permanent deviation from AMS.III-BB version 2.0, to AMS.III-BL version 1.0 in the calculation of $EF_{grid,CO2,y}$ is proposed in line with Option 3 of §46 of AMS.III-BL version 1.0. This methodology is also applicable for this type of project as per §5 e) of AMS.III-BL version 1.0.

Option 3
"If the projects are implemented in least developed countries (LDCs) or small island developing States (SIDS) or in countries that had 10 or fewer registered CDM project activities as of 31 December 2010 (namely, underrepresented countries (URCs)), the following alternatives are available:

(i) The emission factor of zero can be applied if the share of renewable energy mix is greater than 95% based on immediate three years average historical data

(ii) The emissions factor is determined by the most GHG intensive fuel used in the national or regional grid and the default technology efficiency (lower range) as provided in the "Tool to calculate the emission factor for an electricity system". The default emission factors prescribed in the Table 6 below should be used.

Example for using default emission factor:
a. If a grid has a fuel mix of natural gas, oil and hydro, take the default emission factor of oil;
b. if a grid has a fuel mix of several oil and several coal fired power plants, take the default emission factor of coal."

Table 6: Default emission factors for determining project emissions

Fuel	Fuel EF from IPCC (kg/TJ)	Efficiency (%)	Default grid EF (tCO_2/MWh)
Coal	101,000	36.5	1.0
Natural Gas	58,300	30	0.7
Oil	74,800	30	0.9

Therefore, in determining $EF_{grid,CO2,y}$ the CME proposes alternatives i) or ii) under Option 3 of AMS.III-BL version 1.0 for the generic CPA Type A in the registered PoA. Sections I.7.1 and I.7.3 have been revised accordingly.

2	Issue:	

[5] https://www.un.org/development/desa/dpad/least-developed-country-category/ldcs-at-a-glance.html
[6] https://www.era.or.ug/index.php/stats/transmission-stats

E.3.2.6. Changes to the programme design or project design

It has been checked whether any changes to the CPA design (CoPD) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☐	No CoPD has been submitted to the UNFCCC prior to the current monitoring period		
☒	The following CoPD have been approved or are under approval by the UNFCCC		
	1	Title	To date, the following changes have been made to the project design. The size limit for the CPA has been revised to reflect changes at the PoA level and references Methodological Tool 19 Version 7 Demonstration of additionality of microscale project activities. In addition, the boundary of a Type A CPA was revised to cover one or more service territories at the PoA level. The specific CPA only covers one service territory as at the time of registration.
		Status	☐ under approval; ☒ approved
		Appr. date	15/07/2017
		Ref. No.	PRC-10186-001
	2	Title	
		Status	☐ under approval; ☐ approved
		Appr. date	
		Ref. No.	
☒	During the verification of the current MP no need for a CoPD has been identified.		
☐	An approval of the following CoPD.is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply.		
	1	Issue:	
	2	Issue:	
☐	The following CoPD for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

E.3.2.7. Changes specific to afforestation and reforestation component project activities

☒	N/A. The project activity is not an afforestation and reforestation project activities

E.3.3. Compliance of the registered monitoring plan with the methodology including applicable tool(s) and standardized baseline

E.3.4. Compliance of monitoring activities with the registered monitoring plan

Means of verification	By means of comparison of the MR with (i) the applied CDM methodology (ii) all applicable CDM Meth tools and the verification team has checked whether the MP is in compliance with the MP related requirements of the applied methodology. The following sources of information have been used in this context: • /MR/ • /AMS/ • /TL/

	• /unfccc/			
Findings	☒	The MP is completely in accordance with the approved methodology applied by the CDM project (last registered/approved/notified version of the CPA-DD)		
	☒	The breakdown of MP accordance of the referenced tools is as follows:		
		1	Title (of the tool)	*Tool to calculate the emission factor for an electricity system*
			Version	4.0
			MP compliance	☒ full compliance ☐ findings have been raised ☐ N/A (for MP)
		2	Title (of the tool)	
			Version	
			MP compliance	☐ full compliance ☐ findings have been raised ☐ N/A
	☐	The breakdown of MP accordance of the applicable SB is as follows:		
			Title (of the SB)	
			Version	
			MP compliance	
	☒	In this context the following CARs, CLs, FARs have been raised:		
		CL 01, FAR 01 from validation, CAR 06		
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.		
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.		
	The applied methodology has been complied with in all aspects. As per related PoA-DD and CPA-DD registered prior to start of this verification no monitoring plan has been included. The related monitoring plan has been included during the course of this verification assessment. A related PRC has been submitted on PoA level vide PRC-10186-0002 during which also the monitoring plan has been included and approved on 13/01/2019. Accordingly the CPA-DD has been revised w.r.t. the changes made on PoA level including the addition of the monitoring plan. The CPA PRC has been submitted as a notification to the UNFCCC in line with PoA PS §228 and §251. According to the monitoring plan as per latest PoA-DD and CPA-DD, the monitoring report is in line with the provisions as set out in these documents. Further, one FAR from validation w.r.t. emission factor has been considered during this verification and resolved accordingly. Due to this a permanent deviation from the monitoring methodology has been applied to change the application of the related grid emission factor determination. The same has been approved on PoA-level vide PRC-10186-002 and notified on CPA lvevel to secretariat. No standardised baseline is applied.			

E.3.4.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	The verification team has checked the ex-ante parameters and data stated in Section E.1 of MR and compared with section B.4.2 of the registered CPA-DD whether all parameters fixed ex-ante for the crediting period have been applied correctly. The following list of ex-ante fixed parameters have been applied:

Nbr.	Parameter abbreviation	Description	Value	Unit
n.a.				

	The following sources of information have been used in this context: • /MR/ • /ER/ • /CPA-DD/ • /PS/ • /VVS/ • /unfccc/, /METH/	
Findings	☒	The MR and the ER calculation have considered the parameters fixed ex-ante for the crediting period correctly, no deviations have been observed.
	☐	The following deviations from the parameters fixed ex-ante or at renewal of crediting period have been identified in the course of this verification: N/A
	☒	In this context the following CARs, CLs, FARs have been raised:
		FAR 1 from previous validation
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	The data and parameters listed in the section E.1 of MR was cross checked with the applied methodology, revised CPA-DD, ER and are consistent. As per CPA-DD, no parameters are fixed ex-ante. The section in CPA-DD and MR is intentionally left blank.	

E.3.4.2. Data and parameters monitored

Means of verification

During the verification all monitoring parameters listed in Section E.2 of MR were compared with section B.5.1 of the registered PDD have been verified with regard to the:

(i) appropriateness of the applied measurement / determination method,

(ii) the correctness of the values applied for ER calculation,

(iii) the accuracy, and applied QA/QC measures.

Nbr.	Parameter abbreviation	Description	Value	Unit
1.	$EC_{T1M,j,y}$	Electricity metered at Type I consumers	As per ER spreadsheet	MWh
2.	$EC_{T2,i,y}$	Electricity metered at Type II consumers	As per ER spreadsheet	MWh
3.	$EF_{grid,CO2,y}$	Emission factor for the electricity system in year y	0	tCO2e/MWh
4.	f_{HH}	The fraction of end-users (by number) under the CPA that are households	0.98	-
5.	Proportion of N_y and M_y having access to the grid	Check for continued access to electricity	1.0	-
6.	A_{def}	Area of land deforested in the construction of the interconnection lines	0	hectares
7.	L_C	Carbon stock per area	59	tCO_2e/ha

Findings: CAR 04

Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.

During the verification all relevant monitoring parameters (as listed in chapter B.7.1 of the revised CPA-DD) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the project specific verification checklist.

In total 1,065 MWh of electricity has been metered by the consumers including Type I and II consumers. This has been checked from ER spreadsheet, crosschecked with service provider database system, agreements with customers and related check of vouchers/invoices besides onsite inspection to sample number of households/consumers and related interviews with them.

Further, the DOE has checked the emission reduction spreadsheet on the application of the emission factors for Type I-M and Type II consumers w.r.t. consumption limits. Accordingly, the DOE can confirm that the related emission actors $EF_{CO2,T1M}$ and $EF_{CO2,T2}$, 6.8, 1.3, 1.0 tCO_2e/MWh have been applied correctly and in line with the monitoring plan and provisions as set out in the corresponding methodology.

The related grid emission factor $EF_{grid,CO2,y}$ has been correctly applied with a value of 0 tCO_2e/MWh in line with related monitoring plan as per latest notified CPA-DD and latest approved PoA-DD vide PRC-10186-002.

As per CPA-DD/PoA-DD and §46 of AMS-III.BL Version 1, the emission factor for the project electricity system in year y is determined through Option 3, as the project is implemented in an LDC (Uganda). Under Option 3, there are sub-options (i) and (ii). The default emission factor used is either 0.00 if the share of renewable energy mix is greater than 95% based on immediate three years average historical data, or the value from Table 6 of the methodology depending on the fuel mix of the grid.

As shown in the calculation of the percentage of renewable energy mix in the grid for the previous 3 years (2014, 2015, and 2016), the percentage of renewable energy is 96.04 %. It follows that emission factor is 0.00 tCO_2/MWh. DOE has checked related datasets and can confirm the correct application of the grid emission factor of 0 tCO_2e/MWh as per monitoring plan and methodology AMS-III.BL.

The fraction of end users which are households have been checked from the ER spreadsheet and therefore the value can be confirmed as correct. Besides, DOE crosschecked this vide check of service provided database and agreements with customers.

The proportion of Ny (Type II consumers) and My (Type I-M consumers) consumers is also monitored. As the database is electronically established there is no need to conduct onsite inspection to identify whether the meter is still working or not. In case a meter would fail no electricity would be consumed and therefore no emission reduction claims. Besides, the customer would inform the service provider immediately as they would be out of electricity. The service provide is repairing then at the earliest. Due to this the requirements as per monitoring plan are fulfilled as well as those by the related methodology. This has been checked vide check of database of service provider, interview with sample number of household owners and personnel at CME. DOE checked billing records to confirm the same.

The area of deforested land is zero as per monitoring plan. This has been checked by interview with CME and can therefore be confirmed. Further, this has been crosschecked by onsite inspection to sample number of households/SMEs. The CME and the CPA implementers/ SPs only provide the last meters to the household on low voltage level of the grid. Based on onsite inspection it can be confirmed that the grid extension to consumers is along roads and within villages and therefore no forest is cut or removed due to the project activity.

As per service provider database as well as onsite inspection and interview with households besides personnel of CME and service providers all customers

	electricity consumption is monitored via meters despite their amount of consumption. The carbon stock per area is determined by literature and/or studies. The monitoring report provides a value of 59 tCO2e/ha which is in line with related CPA-DD and provided reference by CME however, as there is no deforesting in the CPA the value is not applied for emission reduction calculation during this entire monitoring period. Finally, as per CPA-DD no provisions are given for the calibration on any monitoring equipment and related no calibration frequency. The only measurement equipment involved are the electricity meters installed at the consumers. After appropriate corrections were carried out by the project participant it can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

E.3.4.3. Implementation of sampling plan

Means of verification	The verification team has been checked whether the PPs have applied a sampling approach to determine the monitored values. Further it has been checked whether the PPs have correctly applied the implemented sampling plan including (i) description of the implemented sampling design (ii) collected data (iii) analysis of collected data (iv) demonstration on whether the required confidence/precision has been met. The following sources of information have been used in this context. • /MR/ • /ER/ • /PoA-DD/			
Findings	☒	The PPs/CME or CPA implementer have not applied sampling approaches for the parameters monitored.		
	☐	The PPs/CME or CPA Implementer have applied sampling approaches for the following parameters monitored.		
		1	Parameter:	
			Name:	
			Description on how the sampling efforts and survey comply with the validated sampling plan:	
		2	Parameter:	
			Name:	
			Description on how the sampling efforts and survey comply with the validated sampling plan:	
	☐	In this context the following CARs, CLs, FARs have been raised:		
Conclusion	☒	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.		
	☐	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.		
	No sampling was applied to determine any monitored parameters.			

E.3.4.4. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	As per PoA-DD and related CPA-DD no calibration requirements for measuring equipment has been determined. Even though electricity meters are used to determine the electricity consumption related electricity purchases are monitored via pre-payment vouchers.

	The following sources of information have been used in this context: • /MR/ • /ER/ • /PoA-DD/ • /CPA-DD/ • /IM01/	
Findings	☐	Inconsistencies of the calibration information with calibration reports.
	☐	Based on the assessment and information as per appendix 5 delay(s) in calibration have been identified. The PP has applied the maximum permissible error of the instrument to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration. From the related calibration certificates and emission reduction calculation the verification team confirms that the maximum permissible error has been applied in a conservative manner so that the adjusted measured values due to the delayed calibration result in fewer claimed emission reductions. For details please refer to appendix 6
	☒	The metering diagram reflects the actual situation and is in line with the registered PDD and with the requirements of the applied methodology
	☐	In this context the following CARs, CLs, FARs have been raised:
Conclusion	☒	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☐	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	The installed meters or pre-paid voucher systems do not require calibration procedure as per onsite inspection and interview with CME and Service Providers. No calibration requirements have been determined in the related registered PoA and CPA-DD. Meters installed are calibrated and checked prior to installation. Also due to the number of meters calibration on frequent basis is not reasonable. Meters are exchanged when fail. This has been checked during onsite inspection by interview with related personnel. The procedure is reasonable and also plausible esp considering the small amount of electricity consumed by each user.	

E.3.5. Assessment of data and calculation of emission reductions or net removals

E.3.5.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	During the verification the calculation of baseline GHG emissions has been checked. In detail the following has been verified: • *Transparency:* It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae. • *Parameter consistency:* It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet. • *Correctness:* It has been checked whether the applied formulae and methods for calculating baseline emissions are in accordance with the monitoring plan and the approved methodology. • *Completeness:* It has been checked whether all calculations are complete and without omissions. The equation applied for the determination of baseline GHG emissions is consistent with the revised generic CPA-DD and methodology: Baseline emissions of Type I-M consumers, BET1M,y are calculated as:

$$BE_{T1M,y} = \sum_{j=1}^{M_y} EC_{T1M,j,y} \times EF_{CO2,T1M}$$

Where:

$BE_{T1M,y}$ = Baseline emissions for Type I-M consumers in year y (t CO2)

$EC_{T1M,j,y}$ = Annual electricity consumption of Type I-M consumer j in year y (MWh)

$EF_{CO2,T1M}$ =

1. If $EC_{T1M,j,y}$ is equal to or less than 0.055 MWh/y, then use a default value of 6.8 (t CO2/MWh);
2. If $EC_{T1M,j,y}$ is less than or equal to 0.250 MWh/y but greater than 0.055 MWh/y, then:
   (a) For the portion up to and including 0.055 MWh/y, use a default value of 6.8 (t CO2/MWh);
   (b) For the portion greater than 0.055 MWh/y, use a default value of 1.3 (t CO2/MWh);
3. If $EC_{T1M,j,y}$ is greater than 0.250 MWh/y but less than or equal to 0.500 MWh/y, then:
   a) For the portion up to and including 0.055 MWh/y use a default value of 6.8 (t CO2/MWh);
   b) For the portion greater than 0.055 MWh/y and less than 0.25 MWh/y use a default value of 1.3 (t CO2/MWh); and
   c) For the portion greater than 0.25 MWh/y use a default value of 1.0 (t CO2/MWh);
4. If $EC_{T1M,j,y}$ is greater than 0.500 MWh/y then use a default value of 1.0 (t CO2/MWh) for the entire portion (i.e. default values of 1.3 (t CO2/MWh) or 6.8 (t CO2/MWh) are not eligible for any of the portions)

My = Number of Type I-M consumers in year y
j = Type I-M consumer (j = 1, 2, 3, …)

Baseline emissions of Type II consumers, BET2,y are calculated as:

$$BE_{T2,y} = \sum_{i=1}^{N_y} EC_{T2,i,y} \times EF_{CO2,T2}$$

Where:

$BE_{T2,y}$ = Baseline emissions for Type II consumers in year y (t CO2)
$EC_{T2,i,y}$ = Metered annual electricity consumption of Type II consumer i in year y (MWh)
$EF_{CO2,T2}$ = 1.0 (t CO_2/MWh)
N_y = Number of Type II consumers in year y
i = Type II consumer (i = 1, 2, 3, …)

BE_y = 2,210 tCO_2e

The following sources of information have been used in this context:

- /MR/
- /ER/
- /CPA-DD/
- /PoA-DD/

Findings	☐	The calculation of the baseline emissions was found to be fully compliant with the above stated principles.

		The calculations of baseline GHG emissions or baseline net GHG removals have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in emission or removal calculations have been justified. Appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information has been identified.
	☐	The verification team has identified mistakes in the baseline emissions calculation or the underlying calculation approaches.
	☒	In this context the following CARs, CLs, FARs have been raised:
		CAR 05
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	1. The information provided in the monitoring report has been cross-checked with other sources such billing records, excel files sent to CME by SPs, sample hard copy records at SP offices and random prepaid vouchers kept by end-users. 2. The calculations of baseline GHG emissions have been carried out in accordance with the equations and methods described in the registered monitoring plan and applied methodology. 3. The default factors for all project consumers applied in the ex-ante emission reductions are still valid for the 1st crediting period. 4. Any assumptions used in emission or removal calculations have been justified. 5. It can be confirmed that the baseline calculation is overall correct.	

E.3.5.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	During the verification the calculation of project GHG emissions has been checked. In detail the following has been verified: • Transparency: It has been checked whether the calculation of project emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae. • Parameter consistency: It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet. • Correctness: It has been checked whether the applied formulae and methods for calculating project emissions are in accordance with the monitoring plan and the approved methodology. • Completeness: It has been checked whether all calculations are complete and without omissions. According to the applied and applicable methodology, and the registered CPA-DD, project emissions are emissions associated with the generation of electricity supplied to the project activity end use facilities. Calculated as per equation 13: - $$PE_y = \frac{(ED_{tot,y} \times EF_{grid,CO2,y})}{(1 - TL_{grid})}$$ Where: PE_y = Project emissions from electricity generation in year y (tCO_2) $ED_{tot,y}$ = Total electricity delivered to all new and existing consumers (MWh) $EF_{grid,CO2,y}$ = Emissions factor for the project electricity system in year y (t CO2/MWh)

	If the project activity involves connection to an existing national or regional grid the emissions factor is determined by ranking all the power units in the national or regional grid in the decreasing order of GHG intensity. The emissions factor is the weighted average emissions factor of the top 10% most GHG intensive plants in the grid.6 The emissions factors of the plants shall be calculated based on default plant efficiency provided in the "*Tool to calculate the emission factor for an electricity system"*. TL_{grid} = Transmission and distribution losses in the project electricity system supplying the project activity (%), with 10% as the default value PE_y = (1,065 MWh * 0.0 tCO_2e/MWh)/(1-0.1) PE_y = 0 tCO_2e The following sources of information have been used in this context: • /MR/ • /CPA-DD/ • /AMS/	
Findings	☐	The calculation of the project emissions was found to be fully compliant with the above stated principles. The calculations of project GHG emissions or actual net GHG removals have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in emission or removal calculations have been justified. Appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information have been identified.
	☒	The verification team has identified mistakes in the project emissions calculation or the underlying calculation approaches.
	☒	In this context the following CARs, CLs, FARs have been raised:
		CAR 3, CAR 5
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	The project emissions are zero in line with the applied methodology and registered CPA-DD.	

E.3.5.3. Calculation of leakage GHG emissions

Means of verification	During the verification it has been checked whether leakage emissions have to be considered and, in cases where leakage emissions have to be calculated, the respective calculation of leakage GHG emissions has been checked. In such cases the same verification principles have been considered as for the baseline and project emissions calculation. According to the applied methodology as well as per registered PoA and CPA-DD leakage emissions have to be considered - If project equipment has been transferred from another activity and - On account of construction of new transmission/distribution lines (e.g. carbon stock loss due to deforestation Leakage on account of construction of new transmission/distribution lines (e.g. carbon stock loss due to deforestation) shall be calculated using the method indicated in baseline and monitoring methodology "AM0045: "Grid connection of isolated electricity systems. If the estimated leakage is within 5% of the estimated emission reductions of the project, then this leakage source may be neglected, otherwise the leakage shall be deducted from the emissions reductions.

	As per §45 of the AM0045, leakages related to deforestation in the construction of interconnection lines are calculated as follows: $LE_y = A_{def} \times L_c$ Where: LE_y = Leakage emissions to be accounted in the first year of project crediting period A_{def} = Area of land deforested in hectares L_c = Carbon stock per unit area (above ground, below ground, soil carbon, litter and dead biomass), in tonnes of CO_2 per ha As per §46 of AM0045, leakage from deforestation is a one-time emission. If the estimated leakage from deforestation is below 1% of the project's estimated emission reductions over the first crediting period, then the leakage shall not be accounted. Otherwise the total leakage estimated will be fully deducted from the emissions reductions.. The following sources of information have been used in this context: • /MR/ • /CPA-DD/ • /AMS/ • /IM01/ • /IM02/	
Findings	☒	No leakage emissions were to be considered (LE = 0).
	☐	The calculation of the leakage emissions was found to be fully compliant with the above stated principles (see 8.1 and 8.2). The calculations of leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in leakage emissions calculations have been justified. Where applicable, appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information have been identified.
	☒	The verification team has identified mistakes in the project emissions calculation or the underlying calculation approaches.
	☒	In this context the following CARs, CLs, FARs have been raised: CAR 04
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	Leakage has to been considered according to the registered PoA- and CPA-DD. During onsite inspection and check of related supporting documents the DOE can confirm that the technology used in this project is neither transferred to nor transferred from another activity. This has been checked based on interview with SPs as well as onsite inspection to sample number of households. Further, leakage on account of the construction of transmission lines is not considered under this CPA. Only extension lines to end-users from the already constructed distribution lines are constructed and this does not involve	

	deforestation.

E.3.5.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	The verification team has checked if the MR includes a summary table of the emission reductions calculation specifying separately - Total baseline emissions, - Total project emissions, - Total leakage, - Total emission reductions. It has been assessed whether the values are correct or need to be revised as a consequence of issues identified above Section E.4 of MR demonstrate the summary of GHG emission reductions for the monitoring period and calculated according to the applied methodology AMS-III.BB version 2.0 as follows: $ER_y = BE_y – PE_y - L_y$ $= 2,210\ tCO_2e – 0 – 0$ **$= 2,210\ tCO_2e$**	
Findings	☒	Section F.4 of the MR includes in a summary table of the emission reductions calculation.
	☒	The summary table specified the total baseline, project and leakage emissions as well as the total emission reductions separately.
	☐	The values as specified in the ER summary table are correct; no issues have been identified during the verification which requires changes in the ER calculation.
	☒	During the verification, issues with impact on the ER calculation have been identified.
	☒	In this context the following CARs, CLs, FARs have been raised:
		CAR 03, CAR 04 & CAR 05
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs haves been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	The summary table in the MR has been filled correctly and the values are in line with the related emissions reduction spreadsheet after corrections.	

Title and UNFCCC reference number of the CPA	Baseline emissions or baseline net GHG removals by sinks (tCO_2e)	Project emissions or actual net GHG removals by sinks (tCO_2e)	Leakage (tCO_2e)	GHG emission reductions or net GHG removals by sinks (tCO_2e)		
				Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
10186-0001	2,210	0	0	0	2,210	2,210
Total	2,210	0	0	0	2,210	2,210

E.3.5.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA

Means of verification	The verification team has checked if the MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD.

	Section F.5 of the MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the registered PDD. For this monitoring period from 28/08/2015 through 03/05/2017 (both days included) the project achieved **2,210 tCO_2e** of GHG emission reductions. The estimated ex-ante GHG emission reductions in the registered CPA-DD for this monitoring period are 12,833 tCO_2e. Therefore, the actual emission reduction was significantly lower than the estimated ex-ante emission reductions in the registered PDD It has further checked which of the below listed cases is applicable for the calculated ER of the current monitoring period.	
Findings	☒	*Case 1:* The ex-ante estimated value was found to be proportionally higher than the ex-post determined value. No further action is deemed required.
	☐	*Case 2:* The ex-ante estimated value fits very good to the actually monitored value. No further justification is deemed required.
	☐	*Case 3:* The ex-ante estimated value was found to be proportionally lower than the ex-post determined value.
	☐	In this context the following CARs, CLs, FARs have been raised:
Conclusion	☒	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☐	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	The ex-ante estimated value was found to be proportionally higher than the ex-post determined value. This is due to fewer connections than originally envisaged. No further justification required.	

Title and UNFCCC reference number of the CPA	Value estimated in ex ante calculation in the included CPA-DD(s)	Actual values achieved by the CPAs during this monitoring period
CPA-10186-0001	**12,833 tCO_2e**	**2,210 tCO_2e**
Total	**12,833 tCO_2e**	**2,210 tCO_2e**

E.3.5.6. Remarks on difference from estimated value in included CPA

Means of verification	On the basis of the above comparison of actual values of the monitoring period with the estimations in the registered PDD the verification team has checked whether (in case 3) an appropriate explanation is included in the MR. For this monitoring period, the actual emission reductions were found proportionally lower than the estimated emission reductions in the registered PDD.	
Findings	☒	No further justification or explanation is deemed required as actual emissions of this MP do not exceed significantly the ex-ante calculated emission reductions (applicable for case 1 and 2).
	☐	*For case 3:* The PP has provided a related justification in the MR. The reasons for the increase are as follows:
	☐	In this context the following CARs, CLs, FARs have been raised:
Conclusion	☒	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☐	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	The ex-post ERs are lower than ex-ante estimation	

E.3.6. Assessment of reported sustainable development co-benefits

Means of verification	☒	N/A – as the PP has not monitored the sustainable development co-benefits of the registered CDM project activity or not requested the DOE to verify them.
	☐	The project participants have monitored the sustainable development co-benefits of the registered CDM project activity, and requested the DOE to verify them. The following sources of information have been used in this context: • /MR/ • /CPA-DD/ • /unfccc/ • /IM01/
Findings	☒	N/A – as the CME has not monitored the sustainable development co-benefits of the registered CDM project activity or not requested the DOE to verify them.
	☐	Therefore, the DOE has assessed and confirms that: (a) The monitoring has been carried out in accordance with the document for monitoring sustainable development co-benefits, if such document was developed and published on the UNFCCC CDM website in accordance with the "CDM project standard for project activities"; (b) The reported monitoring results correspond to the sustainable development co-benefits of the project activity as observed by the DOE.
	☐	In this context the following CARs, CLs, FARs have been raised:
Conclusion	☒	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☐	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	☒	N/A – as the PP has not monitored the sustainable development co-benefits of the registered CDM project activity or not requested the DOE to verify them.

E.3.7. Global stakeholder consultation

Means of verification		In accordance with the PCP the DOE has submitted the initial version of the monitoring report provided by the PP for this monitoring period to be published on the UNFCCC webpage. The monitoring report has been published and the comment period has been from 17/04/2018 to 01/05/2018. The following sources of information have been used in this context: • /MR/ • /unfccc/
Findings	☒	No comments have been received on the published monitoring report for this monitoring period.
	☐	Comments have been received and the DOE has concluded that comments are related to issues outside the CDM rules and requirements. Please refer to the list provided under Conclusion of this Section below for related information.
	☐	Comments have been received. The DOE has - requested further information from the submitters of the comments - informed the project participants of the comments received, and requested their feedback within a specified timeframe, - considered the input received and has assessed whether such comments are relevant to the CDM project activity, - acknowledged receipt of all submitted comments on the MR of the proposed CDM project activity,

		- assessed whether the comments are related to the CDM rules and requirements (if so related findings have been raised as per below), - used all possible means to determine the authenticity of the name and contact details of the individual or organization on whose behalf the comments have been submitted, - contacted the secretariat to make them publicly available (if only addressed to the DOE), - determined whether authentic and relevant comments in the global stakeholder consultation were taken into due account in the PDD of the proposed CDM project activity.
	☐	In this context the following CARs, CLs, FARs have been raised, i.e. as the DOE concludes that the comments are related to the CDM rules and requirements:
Conclusion	☒	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☐	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.

As the DOE has concluded that comments are related to issues outside the CDM rules and requirements the comments and information gathered are listed as follows:

Nbr.	Original comment received	Feedback by the PP	Statement by DOE
1			
2			

SECTION F. Internal quality control

Before the submission of the final verification report a technical review of the whole verification procedure was carried out. The technical reviewers are competent GHG auditors being appointed for the scope this project falls under. The technical reviewers are not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the verification opinion and the topic specific assessments as prepared by the verification team leader may have been confirmed or revised. Furthermore, reporting improvements might have been achieved.

After the successful technical review, an overall (esp. procedural) assessment of the complete verification has been carried out by a senior assessor located in the accredited premises of TÜV NORD CERT GmbH.

After this step the submission for requesting for issuance is conducted.

SECTION G. Verification opinion

The International Bank for Reconstruction and Development has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the PoA: "**Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda**", with regard to the relevant requirements for CDM project activities. The component project activity reduces GHG emissions through the implementation of a variety of possibilities for electrification of households and/or non-households such as SMEs or public buildings and institutions, including (A) electrification of consumers to the national/regional grid, (B) battery charged LED or CFL lightning systems and (C) installation of renewable electricity generation systems throughout Uganda. This verification covers the period from 28/08/2015 – 03/05/2017 (including both days).

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.

- the monitoring plan is in accordance with the applied approved CDM methodology, i.e., AMS-III.BB ver. 2.0.
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The CPA-0001 has generated GHG emission reductions.

As the result of this periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions: **2,210 tCO_2e**

SECTION H. Certification statement

As a duly accredited DOE, TÜV NORD CERT confirms that the PoA

"Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda"

registered under

UNFCCC-No.: **10186**

has achieved emission reductions in accordance with all applicable requirements for registered CDM project activities during the current monitoring period

MP-No.: 1.0

from: 28/08/2015

to: 03/05/2017

(including both days) as follows:

Emission reductions: **2,210 tCO_2e**

Essen, 14/06/2019

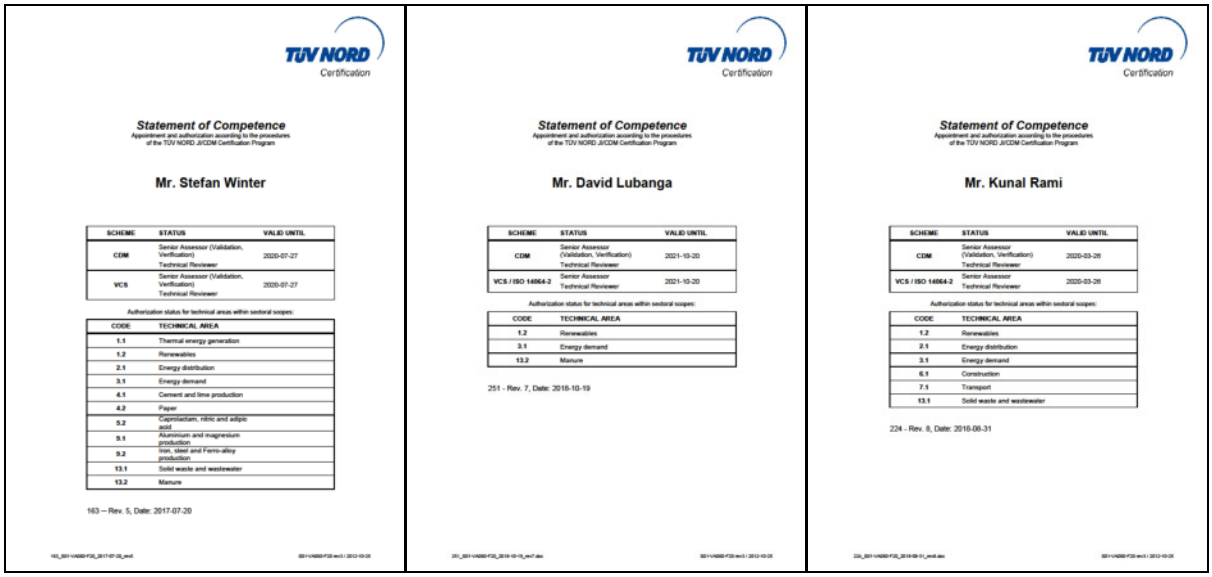
Stefan Winter
TÜV NORD JI/CDM CP
Verification Team Leader

Appendix 1. Abbreviations

Abbreviations	Full texts
BECS	Bundibugyo Energy Cooperative Society
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CPA	Component Project Activity
CPA-DD	Component Project Activity Design Document
CER	Certified Emission Reduction
CO_2	Carbon dioxide
CO_2eq	Carbon dioxide equivalent
CL	Clarification Request
CME	Coordinating and Managing Entity
DOE	Designated Operating Entity
DVerR	Draft Verification Report
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
IM	Interview Memo
IPCC	Intergovernmental Panel on Climate Change
KIL	Kilembe Investment Trust
KRECS	Kyegegwa Rural Electricity Cooperative Society
MP	Monitoring Plan
MR	Monitoring Report
PA	Project Activity
PO	Partner Organization
PoA	Programme of Activities
PoA-DD	Programme of Activities Design Document
PDD	Project Design Document
PP	Project Participant
PRC	Post Registration Changes

PS	**CDM project standard for project activities**
QA/QC	**Quality Assurance / Quality Control**
REA	**Rural Electrification Agency Uganda**
SME	**Small and Medium sized Enterprises**
SP	**Service Provider**
UETCL	**Uganda Electricity Transmission Company Limited**
UNFCCC	**United Nations Framework Convention on Climate Change**
VVS	**Validation and Verification Standard**

Appendix 2. Competence of team members and technical reviewers



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Stefan Winter

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2020-07-27
VCS	Senior Assessor (Validation, Verification) Technical Reviewer	2020-07-27

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
2.1	Energy distribution
3.1	Energy demand
4.1	Cement and lime production
4.2	Paper
5.2	Caprolactam, nitric and adipic acid
5.1	Aluminium and magnesium production
5.2	Iron, steel and Ferro-alloy production
13.1	Solid waste and wastewater
13.2	Manure

163 – Rev. 5, Date: 2017-07-20

TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. David Lubanga

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2021-10-20
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2021-10-20

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy demand
13.2	Manure

251 - Rev. 7, Date: 2018-10-19

TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Kunal Rami

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2020-03-26
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2020-03-26

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
2.1	Energy distribution
3.1	Energy demand
6.1	Construction
7.1	Transport
13.1	Solid waste and wastewater

224 - Rev. 8, Date: 2018-08-31

Appendix 3. Documents reviewed or referenced

No.	Author	Reference	Title	References to the document	Provider
1.	UNFCCC	/AMS/	AMS-III.BB "Electrification of communities through grid extension or construction of new mini-grids", Version 2.0 AM0045 "Grid connection of isolated electricity systems", Version 2.0 AMS-I.L "Electrification of Rural Communities Using Renewable Energy", Version 3 AMS-III.AR "Substituting Fossil Fuel Based Lighting with LED/CFL Lighting Systems", Version 5 AMS-III.BL "Integrated methodology for electrification of communities", Version 1	https://cdm.unfccc.int/methodologies/SSCmethodologies/approved	Other
2.	CME	/CPA-DD/	Specific CPA DD named "Accelerating Electrification through Grid Extension and off-grid electrification in Rural Areas of Uganda CPA 1" - version 4.0, dated 25/05/2015 - version 5.0, dated 15/12/2017 - version 6.0, dated 12/06/2018 - version 7.0, dated 15/01/2019		CME
3.	CME	/PoA-DD/	PoA-DD named "Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda" - version 4.0, dated 25/05/2015 - version 5.0, dated 20/03/2017 - version 6.0, dated 13/12/2017 - version 7.0, dated 12/06/2018 - version 8.0, dated 11/07/2018 - version 9.0, dated 15/11/2018		CME
4.		/ER/	- Emission Reduction Calculation for Monitoring Report (initial V1 and final V2 dtd 28/02/2019) - Uganda Grid Emission Factor calculation V3		CME
5.		/VVS/	CDM validation and verification standard for programmes of Activity, version 2.0	https://cdm.unfccc.int/Reference/Standards/index.html	Other
6.		/PS/	CDM project standard for programmes of Activities, version 2.0	https://cdm.unfccc.int/Reference/Standards/index.html	Other
7.	DOE	/VAL/	Validation Report for CDM PoA titled "Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda" Rev. No.3.0, dated 04/08/2015 Validation report on post registration changes for PoA titled "Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda" Rev. No.1.1, dated 31/03/2017		Other

			CPA Validation reports titled "Accelerating Electrification through Grid Extension and off-grid electrification in Rural Areas of Uganda CPA 1", version 3.0, dated 04/08/2015 "Accelerating Electrification through Grid Extension and off-grid electrification in Rural Areas of Uganda CPA 2", version 1.1, dated 31/03/2017		
8.	DOE	/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)		DOE
9.	IPCC	/IPCC/	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	www.ipcc-nggip.iges.or.jp	Other
10.	UNFCCC	/KP/	Kyoto Protocol (1997)	http://unfccc.int/kyoto_protocol/items/2830.php	Other
11.	UNFCCC	/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)	http://cdm.unfccc.int/Reference/COPMOP/index.html	Other
12.	UNFCCC	/MRT/	Monitoring Report Form (CDM-MR-FORM), Version 06.0	https://cdm.unfccc.int/Reference/PDDs_Forms/index.html	Other
13.	CME	/MR/	Monitoring Report titled "Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda", version 1.0, dated 12/04/2018 Monitoring Report titled "Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda", version 2.0, dated 15/01/2019 Monitoring Report titled "Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda", version 3.0, dated 30/01/2019 Monitoring Report titled "Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda", version 4.0, dated 28/02/2019 Monitoring Report titled "Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda", version 5.0, dated 10/06/2019		CME
14.	CME	/PRC/	PRC PoA Assessment Report "Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda", version 1.0 dated 15/11/2018 PRC CPA Assessment Report,		DOE

			"Accelerating Electrification through Grid Extension and off-grid electrification in Rural Areas of Uganda CPA 1", version 1 date 23/01/2019 "Accelerating Electrification through Grid Extension and off-grid electrification in Rural Areas of Uganda CPA 2" version 1.0 date 28/01/2019		
15.	UNFCCC	/SASU/	Sampling and Surveys for CDM Project Activities and Programme of Activities	https://cdm.unfccc.int/Reference/Standards/index.html	Other
16.	DOE	/PTO/	Photos of sample records taken at the CME office		Other
17.		/MAN/	CME Manual version 2.0		CME
18.		/RR/	CME review report		
19.		/TRAIN/	Training records: - Attendance sheets for trainings conducted 31st July 2017 to 4th August 2017 - Invitation letter by CME to all SPs on "Service Provider Training on CDM Implementation Strategy under Rural Elec. Programme" Ref: 113/3/2767 dated 21/07/2017 - Attendance sheets for training on EDIMS system 12/03/2018 – 21/03/2018		
20.		/MoU/	MoUs/agreements signed between CME and each CPA implementer/Service Provider - Contract amendment between BECS and REA w.r.t. CDM aspects including ownership of ERs dated 30/07/2015 - Contract amendment between KIL and REA w.r.t. CDM aspects including ownership of ERs dated 30/07/2015 - Contract amendment between PACMECS and REA w.r.t. CDM aspects including ownership of ERs dated 30/07/2015 - Contract amendment between BECS and REA w.r.t. CDM aspects including ownership of ERs dated 27/07/2015 - Contract amendment between UMEME and REA w.r.t. CDM aspects including ownership of ERs dated 30/07/2015 -		
21.		/CON/	Customer agreement contracts with households and SMEs for electricity connection installation under SP KIL		SP
22.		/WO/	Installation work orders for technicians to install meter		SP
23.		/INV/	Invoices and/or purchase vouchers for electricity consumption for this entire monitoring period		SP
24.		/DATA/	CME database Service Provider database		SP

25.		/MAP/	Map of the distribution Service Territories of Uganda		REA
Websites					
25.	UNFCCC	/unfccc/	UNFCCC	http://cdm.unfccc.int	Other
26.	IPCC	/ipcc/	IPCC publications	www.ipcc-nggip.iges.or.jp	Other
27.	ERA	/era/	DNA of Uganda	https://www.era.or.ug/index.php/stats/transmission-stats	ERA

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

Table 3. Remaining FARs from validation and/or previous verification

FAR ID	01	**Section no.**	B.2.3, C.3.5, E.2, F.2, ER calc	**Date:** 10/07/2015
Description of FAR				
The Validating DOE has raised a FAR at inclusion stage as following: *"The CME has opted that the CPA use a value of 0.513 tCO2/MWh, for the estimation of ex ante ERs, as indicated in the PoA. This value is a Combined margin CO2 emission factor for the project electricity system for Uganda. The value is published as an approved standardized baseline ASB0006 Version 01.0 for the national grid in Uganda. The value is used only for the purpose of sample calculation and ex ante estimation of ERs. The CME has indicated that the parameter will be monitored; thus the value to be used in the actual ERs calculation will be determined during monitoring. For this reason, the DOE has accepted the use of the value.* *However, the DOE hereby raises a Forward Action Request (FAR # 1): During monitoring, the PP shall determine $EF_{grid, CO2,y}$ in line with the requirement of the methodology."* The MR still applies the grid factor of ASB0006 which is not in line with the FAR as raised above by validating DOE during inclusion of CPA1.				
Project participant response (1st round)				**Date:** 30/08/2018
The monitoring report has been revised to determine the emission factor as a monitored parameter following the guidance of the methodology				
Documentation provided by project participant (1st round)				
☐	Changes in the PDD	Section(s):		New version No.:
☐	Changes in MR	Section(s):		New version No.:
☒	Changes in XLS	Worksheet(s): *Spreadsheet Uganda Grid Emission Factor*		New version No.: 3.0
☐	Other:			
DOE assessment (1st round)				**Date:** 10/09/2018

The grid emission factor applied as the highest value among each of the three years (2015-2017) for the calculation of PE does not follow the applied methodology. Clarify why not for each year y during the related monitoring period the related emission factor for that year is applied. As per methodology §34 the $EF_{grid,CO2,y}$ has to be determined as based on the fact that the project activity involves the connection to an existing national electricity grid.
"[…] the emissions factor is determined by ranking all the power units in the national or regional grid in the decreasing order of GHG intensity. The emissions factor is the weighted average emissions factor of the top 10 per cent most GHG intensive plants in the grid. The emissions factors of the plants shall be calculated based on default plant efficiency provided in the "Tool to calculate the emission factor for an electricity system".
The provided excel does not provided all power units in the decreasing order of GHG intensity. Further, the emission factor is not determined as the weighted average of the top 10 per cent most GHG intensive plants (currently 18 plants are stated and therefore 10% are equal to the 2 most GHG intensive plants).
Besides, the list of power plants provided in the excel file Uganda Grid Emission Factor has been crosschecked with the Excel file for the proposed standardized baseline PSB0012/ASB0006 and Uganda transmission Grid Map UETCL/GDP/12/02 dated Feb 2011. Knowing that the data in the excel and the map might not be up to date, clarification is requested w.r.t. the inconsistency in number of thermal power plants and titles of power plants provided for this project and with the excel for the ASB0006.
As well as spreadsheet refers to "Net Calorific Value for Residual Fuel", however the stated value is the default carbon content of residual fuel oil as per IPCC Vol 2 Chapter 1 Table 1.4 and therefore the Emission factor calculation given in cells B22 and B23 are not correct.
A clarification is requested on this approach. Besides evidence on input data used is requested and submitted along response to this assessment.

Furthermore, reference to "As per table 2 of the tool" for the conversion efficiencies shall be clarified. Reference to which tool is unclear.

Project participant response (2nd round)	**Date:** 15/01/2019
A permanent deviation to the methodology has been applied to the PoA-DD and approved through the prior approval process to allow the use of AMS-III.BL Version 1 to determine the grid emission factor for CPAs under the PoA. The determination of the grid emission factor has been revised to reflect this permanent deviation and a new spreadsheet has been provided.	

Documentation provided by project participant (2nd round)			
☐	Changes in the PDD	Section(s):	New version No.:
☒	Changes in MR	Section(s): B.2.3, C.3.5, E.2, F.2	New version No.: 2.0
☒	Changes in XLS	Worksheet(s): *Uganda Grid Emission Factor V3.xlsx`*	New version No.: 3
☐	Other:		

DOE assessment (2nd round)	**Date:** 23/01/2019
Ok. Related deviation on determination of grid emission factor has been approved by EB vide PRC-10186-0002 dated 13/01/2019. Further, the related emission reduction calculation considers now the grid emission factor as per monitoring plan and registered PoA-DD. The factor as per ASB0006 is not used any longer. Therefore this finding is closed.	

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

FAR ID	02	**Section no.**	-	**Date:** 23/06/2016
Description of FAR				
The Validating DOE has raised a FAR at inclusion stage as following: *"During implementation of the CPA, the PP shall ensure that all service providers involved in the CPA have a signed MoU and the contract stipulated under eligibility criterion 14; and records maintained for verification by the verifying DOE."*				
Project participant response (1st round)				**Date:** 24/05/2018
All contracts have been amended accordingly.				

Documentation provided by project participant (1st round)			
☐	Changes in the PDD	Section(s):	New version No.:
☐	Changes in MR	Section(s):	New version No.:
☐	Changes in XLS	Worksheet(s):	New version No.:
☒	Other:	*Signed contracts with each SP and CME*	

DOE assessment (1st round)	**Date:** 29/05/2018

OK. DOE has checked the signed lease agreements (MOUs)/MoU/ signed between each SP and the CME. Under provision 11.14.1, it is stated explicitly that the Rural Electrification Board (CME) shall own all generated emission reductions under the programme, in line with eligibility criterion 14. Therefore this FAR from inclusion is closed.

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Table 4. CLs from this verification

CL ID	**01**	**Section no.**		**Date:** 29/05/2018
Description of CL				
During onsite assessment esp. when checking the billing system of the Service Providers it has been identified that far more connections have been completed since the start date of the CPAs than considered for this monitoring period. Please clarify why only part of the customers have been considered under the CPA for emission reduction calculation.				
Project participant response				**Date:** 30/08/2018
The CME and CPA Implementer do not have complete data on all connections active during the monitoring period. The CPA implementer is working to have complete information for all connections, however it was not available at the time of verification. Only connections for which sufficient information is available have been included under the CPA.				
Documentation provided by project participant				
-				
DOE assessment				**Date:** 10/09/2018
OK. From interviews onsite, it was evident that timely transmission of customer data from some service providers is still a challenge and the CME is working on a more efficient way to overcome them. Therefore, claimed emission reductions as at the time of onsite visit is much lower.				

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Table 5. CARs from this verification

CAR ID	**01**	**Section no.**	**A.1.2**	**Date:** 29/05/2018
Description of CAR				
Section A.1.2 of the MR version 1.0 also includes CPA ref number 10186-0002. However as per instructions to fill the MR only CPAs which have been included until the end date of the corresponding monitoring period have to be stated. Revision requested.				
Project participant response				**Date:** 30/08/2018
The reference to CPA 2 in section A.1.2 has been removed.				
Documentation provided by project participant				
MR version 2.0				
DOE assessment				**Date:** 10/09/2018
CPA 2 has been removed from section A.1.2 of the revised MR version 2.0.				

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	**02**	**Section no.**	**B.2.1, B.2.2, B.2.4**	**Date:** 29/05/2018
Description of CAR				
Following issues have been identified w.r.t sections B.2.1, B.2.2 and B.2.4: 1. B.2.1: As per instruction the related PoA-DD version, date of completion and DOE validation report date is missing. Further an already approved PRC with corrections is missing to be described along with required details for approval number and date. 2. B.2.2: The date of the DOE validation report is missing 3. B.2.4: Clarify and specify which PRC has been already conducted and approved and which is newly done. Further provide approval number and date for already approved PRC. Finally specify the PRC w.r.t. size limitation.				
Project participant response				**Date:** 30/08/2018

1. B.2.1: The missing information relating to the current PRC has been added. Details of the already approved PRC have been added as well. 2. B.2.2: Same information regarding current PRC has been added 3. B.2.4: The PRC information has been provided as well as the design changes implemented. Changes have also been made to C.3.2, C.3.4 etc. as well.
Documentation provided by project participant
MR version 2.0
DOE assessment **Date:** 10/09/2018
MR version 2.0, 1. B.2.1: Details of the previously approved PRC as well as current submissions under issuance track have been included in line with the MR template version 2.0 2. B.2.2: The date of the DOE PRC validation report has been added 3. B.2.4: Details of the already approved PRC have been added. It is now clear which PRC is new and which already done as related dates and approval numbers are given. As all issues have been resolved this finding is closed.

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	**03**	**Section no.**	**F.2**	**Date:** 29/05/2018
Description of CAR				
Project emissions sample calculation stated is inconsistent with the related equation given in the same section as ED_{tot} x EF_{grid} / (1-TDL). Revision requested. Refer methodology §34 equation (13).				
Project participant response				**Date:** 30/08/2018
This has been revised in the monitoring report and ER calculation worksheet to match the correct calculation method.				
Documentation provided by project participant				
MR version 2.0				
DOE assessment				**Date:** 10/09/2018
PE calculation now applies equation 13 as prescribed by the methodology.				

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	**04**	**Section no.**	**F.3**	**Date:** 29/05/2018
Description of CAR				
Specification along with supporting evidence is requested w.r.t. that leakage emissions are below 5% of the estimated emission reductions. Further the MR refers to “project emissions” not “emission reductions”. Correction requested.				
Project participant response				**Date:** 30/08/2018
The section on leakage has been revised to include a calculation based on area deforested and carbon stock in Uganda. The reference to project emissions has been removed.				
Documentation provided by project participant				
MR version 2.0, Planned Projects - July 2018.xls				
DOE assessment				**Date:** 10/09/2018
The CME has confirmed that no transmission lines are constructed under the PoA. The CPAs only engage in extension of distribution lines to reach customers that would otherwise not be served. Therefore, no area is deforested and no leakage is achieved. This is checked based on provided excel of planned projects by July 2018 as well as based on onsite inspection.. Finding closed.				

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	**05**	**Section no.**	**ER calculation**	**Date : 29/05/2018**
Description of CAR				

Following issues w.r.t. ER calculation have been identified:

1) The spreadsheet for MR1 refers on sheet Overview to "For the Year of August 2015 to through April 2017" and "For the Year of September 2016 to through August 2017" whereas the monitoring period 1 is from 28/08/2015 to 03/05/2017. Clarification and revision requested.
2) Also Baseline emissions for 2015 and 2016 are presented whereas the monitoring period is different. Please clarify and specify.
3) Even though the electricity consumption is considered only up to end of April 2017, considering the end date of the monitoring period of 03/05/2017, how is it ensured that the last payment by a customer during this monitoring period is excluded from the monitoring period and considered for the next subsequent monitoring period? Pls refer to methodology §14 (b) (ii).
4) Clarification is requested w.r.t. baseline emission calculation method applied and meth requirement §27 for $EC_{T1,M,y}$ which requires the annual electricity consumption in year y for Type I-M consumer. The ER applies a period from Sept 2015 to Sept 2016 a 12 months period. Pls clarify compliance with the requirement as per methodology.
5) Project emissions calculation method as per cell D17 of sheet overview is inconsistent to related PoA-DD and CPA-DD. ER spreadsheet calculates ED_{tot} x EF_{grid} x (1-TDL) whereas the DD and methodology request calculating according to ED_{tot} x EF_{grid} x / (1-TDL). Revision requested. Refer methodology §34 equation (13).
6) Further specification w.r.t. units for each column is requested.
7) Clarification and specification is requested w.r.t. the meaning of "X" and "Y" provided in cells C2 and D2 of sheet "KIL Consumption Data".

Project participant response	**Date :** 30/08/2018

1. Reference has been revised to state "From September 2015 through August 2016" and "From September 2016 through April 2017".
2. The excel sheet has been revised to remove references to years 2015/2016 in the overview sheet
3. As per the methodology, the purchase of electricity prior to the start of the monitoring period may be included and the last purchase within the monitoring period must be excluded. As the data shows monthly purchases and there is no way to distinguish between individual purchases, the excel sheet has been revised to remove the final month of the monitoring period, thereby removing the final purchase. The last purchase prior to the monitoring period is not included.
4. Clarification has been added in section E.2 regarding the time period covered for the parameter
5. The calculation of project emissions has been revised to match the methodology
6. Unit have been provided for columns showing electricity and emissions
7. Sheets have been revised to state that they are the latitude and longitude values for the GPS coordinates

Documentation provided by project participant
Updated ER spreadsheet

DOE assessment R1	**Date:** 10/09/2018

1. Revised to from Sept 2015 to August 2016, and from September 2016 to April 2017. No data for the months of August 2015 is available and as per onsite interview there is no possibility to recalculate the consumption data for single days. Therefore, no CERs are claimed for the days 28-31/08/2015 and 01-03/05/2017. Customers irregularly purchase vouchers for electricity consumption during a months. Based on the amount of customers under the CPA it is not possible to extract purchases for single days but on monthly basis only. One would need to check each single customer account for each day of the month. It is not possible to conduct this task with reasonable efforts and costs.
2. OK as revised.
3. Values prior to the start of the MP have been excluded as well as for April 2017 have been excluded. It is considered reasonable to exclude April 2017 instead of May 2017 as the monitoring period only covers the first three days of the month, May 2017. As it is not possible to distinguish and ensure that the last payment under the monitoring period is done in the first three days of May 2017 the purchases for three days in May and last full month of the monitoring period have been excluded. The same will be included in the next monitoring period. This is considered conservative and accepted and best practice to apply the related methodology requirement. However, please clarify why the August 2016 values are excluded in the summation of annual consumption. August 2016 is not the end of the MP.
4. Clarification has been added into section E.2 of the revised MR. Further the ER calculation has been exactly followed the requirement of the methodology §27. The annual consumption for each customer has been used to determine which default emission factor (6.8, 1.3 or 1.0 or mixture) is applicable for which range. Further as the monitoring period does not end with the calendar year pro rata application of ER has been applied to reflect the ER calculation w.r.t. the end data of 03/05/2017 (excluding last purchase method). This is in line with methodology and method is correctly applied and method is reasonable and plausible.
5. The project emissions have been determined as per equation 13 of the methodology. ER spreadsheet has been corrected accordingly.
6. The related units for each column have now been defined for clarity in ER spreadsheet.
7. Revised to indicate that those are the GPS coordinates for each installation. The columns are now defined as “GPS Coordinates (Longitude)” and “GPS Coordinates (Latitude)”. Related specification is provided. However, in the same worksheet, the same is unchanged in the tab ‘HH vs SME CPA 1’
8. However, data between MR v1 excel and excel provided for this MR are not consistent as following:

MR2

s/n	X	Y	Meter Serial No#	April _2017	Mai 17	Jun 17	July 2017	Aug 17
2674	0,030632	29,76863	22150250409	30,3	15,15	0	17,4	3
2764	0,027768	29,76335	22150253585	0	0	0	0	31,4
2814	0,039941	29,72613	45006191402	0	0	0	0	0

MR1

s/n	X	Y	Meter Serial No#	April _2017	Mai 17	Jun 17	July 2017	Aug 17
2674	0,030632	29,76863	22150250409	30,3	15,15	0	17,4	31,4
2764	0,027768	29,76335	22150253585	0	0	0	0	0
2814	0,039941	29,72613	45006191402	0	0	0	0	11,5

Please crosscheck the datasets and clarify the inconsistencies.

Project participant response	**Date :** 20/09/2018

3. August 2016 values have now been included in the summation of annual consumption
7. The definition of x and y coordinates has now been revised in the HH vs SME CPA 1 worksheet
8. Raw data was reviewed and applied to both MR worksheets for this time period to ensure the data is correct.

Documentation provided by project participant
Emission Reduction Worksheet for MR 1 V2.xlsx

DOE assessment R2	**Date:** 23/01/2019

7. OK. DOE has checked related ER spreadsheet and can confirm that August 2016 data is now considered for ER calculation.
8. Ok. The related indication of "x" and "y" has not been specified as "GPS coordinates (Longitude)" and "GPS Coordinates (Latitude)".
9. Not ok. Latest provided ER spreadsheet shows that the related data for 2674, 2764 and 2814 are missing whereas those are included in ER spreadsheet for CPA 1 previous monitoring period. Pls clarify.

Project participant response	**Date**: 25/01/2019
9) The updated raw data was applied to the ER spreadsheet for MR2 in the previous round of revisions but not to the ER spreadsheet for MR 1. The three connections (2674, 2764, 2814) have no or little consumption during the monitoring period and two of the connections (2674, 2814) have no address data. As there were multiple iterations of the data set, these connections were removed in later data sets as they are likely inactive and do not have complete information. This correction has now been applied to the ER spreadsheet for MR 1 as well. The removal of these 3 connections did not affect the resulting emission reductions.	
Documentation provided by project participant	
Emission Reduction Worksheet for MR 1 V2.xlsx	
DOE assessment R3	**Date:** 30/01/2019
9. Ok. The related connections/consumers have been also removed for the ER spreadsheet for this monitoring period. However the MR still refers to 4,045 connections.	
Project participant response	**Date:** 28/02/2019
9. This has been revised to 3,522.	
Documentation provided by project participant	
MR version 4.0 *Emission Reduction Worksheet for MR 1 V2.xlsx dtd 28/02/2019*	
DOE assessment R4	**Date:** 28/02/2019
9. Ok. Related number of connections (3,522) is now consistent within MR and to ER spreadsheet.	

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☐ The finding is closed

CAR ID	**06**	**Section no.**	**E.2**	**Date:** 29/05/2018
Description of CAR				
Changes w.r.t. the inclusion of the monitoring plan and related PoA and/or CPA-DD have to be reflected in the MR to keep consistency of the monitoring plans between documents.				
Project participant response				**Date:** 30/08/2018
Parameters in section E.2 have been revised to match the monitoring plan in the PoA and CPA-DDs				
Documentation provided by project participant				
MR version 2.0				
DOE assessment R1				**Date:** 10/09/2018
Section E.2 of the MR is not consistent with B.5.1 of the revised CPA-DD. Parameter *Proportion of* N_y and M_y *having access to the grid* is excluded in the MR. A clarification is sought				
Project participant response R1				**Date :** 15/01/2019
This parameter has been added to section E.2				
Documentation provided by project participant				
MR version 2.0 dtd 15/01/2019				
DOE assessment R2				**Date:** 23/01/2019
OK. The related sections w.r.t. PoA PRC-10186-0002 have been filled as per instructions to fill the template. Further the EFgrid has been applied as per PRC approval PRC-10186-002. Finally, the monitoring section has been included however the following issues have been identified: 1. For several parameters in entire section E.2 inconsistencies between the MR and latest CPA-DD have been identified from Data unit given, description of parameter, monitoring frequency or purpose of data. 2. Further, it has been identified that for several parameters the measurement method has not been stated as given in latest CPA-DD. Finally, the date of the DOE validation report for PRC notification on CPA level is pending to be provided.				
Project participant response R2				**Date :** 30/01/2019
1. Parameters in the MR 1 have been revised to match the parameter descriptions in the CPA-DD 2. The measurements methods have been revised in the MR 1 to match the CPA-DD. The dates of the DOE validation report for PRC notification on CPA level have been filled in.				
Documentation provided by project participant				
MR ver 3.0				

DOE assessment R3	Date: 30/01/2019
1. Ok. As per latest provided monitoring report the section is now consistent with latest CPA-DD notified to UNFCCC as o 30/01/2019. 2. Ok. The monitoring report has been updated accordingly. 3. The date of the PRC assessment report is included now as per related reports. 4. Not ok. For related parameter $EC_{T1M,j,y}$ and $EC_{T2i,y}$ further specification to the related data is requested	
Project participant response	**Date**: 28/02/2019
4. ECT1Mj,y and ECT2i,y have multiple values as these parameters represents the total consumption during the monitoring period for each Type 1 and Type 2 connection. Instead of giving the values in the MP, I have added a reference in the MR to the columns in the xls.	
Documentation provided by project participant	
MR ver. 4.0	
DOE assessment R4	**Date:** 28/02/2019
4. OK. Further specification to exact cell in ER spreadsheet is provided which is considered sufficient.	
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	07	Section no.	B.1	Date: 23/01/2019
Description of CAR				
Section B.1 of the MR version 2.0 dtd 15/01/2019 states that "For this monitoring report, 5 Service Providers have provided monitoring data to determine the resulting emission reductions. The table below summarizes the respective service providers, number of connections, electricity consumed, and estimated emission reductions." However, as per related CPA 1 which is the only CPA covered by this monitoring report and period only KIL is the related service provider and related data and info is to be considered for ER calculation as per ER spreadsheet. Please clarify why reference to others is also made. Further, please clarify which period the stated data is representing. From start date of crediting period or exactly the related monitoring period or since start of the project activity until today.				
Project participant response				**Date:** 30/01/2019
Section B.1 has been revised to cover only the SP, connections, and power consumed during the monitoring period.				
Documentation provided by project participant				
MR ver 3.0				
DOE assessment				**Date:** 30/01/2019
Ok. The section has been revised accordingly and states now that as of today 2 CPAs are included covering 13 service territories of the host country, that one CPA is covered by this monitoring period and the data in Table is for the related SP KIL for this corresponding monitoring period.				
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed			

Table 6. FARs from this verification

FAR ID	01	Section no.		Date: 29/05/2018
Description of FAR				
It has been identified during onsite that the back-up system is not sufficiently implemented. Therefore the verifying DOE during next verification should crosscheck whether a sufficient back-up system is installed.				
Project participant response				**Date:** 30/08/2018
The CME is developing an electronic database to back up all connection information under the PoA. The system is scheduled to be online during the second verification.				
Documentation provided by project participant				
DOE assessment				**Date:** DD/MM/YYYY

FAR ID	02	Section no.		Date: 10/09/2018
Description of FAR				

As per methodology §14 (b) for each customer the last purchase during the monitoring period has to be excluded but the last purchase of the previous monitoring period has to be included. During 1st monitoring period ending 03/05/2017 the purchases of the first three days of May 2017 and last full month of the monitoring period, April 2017, have been excluded as it could not be distinguished in detail when each customer made the last purchase. This FAR is raised to ensure that the correct purchases are considered during next subsequent verification by including all purchases from 01/04/2017 onwards even though the next subsequent verification monitoring period starts on 04/05/2017.	
Project participant response	**Date:** DD/MM/YYYY
Documentation provided by project participant	
DOE assessment	**Date:** DD/MM/YYYY

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Document information

Version	*Date*	*Description*
02.0	29 December 2017	Revision to align with the requirements of the "CDM validation and verification standard for programme of activities" (version 01.0).
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