VERIFICATION AND CERTIFICATION REPORT

- 1ST PERIODIC –

MICROENERGY CREDITS

MICROENERGY CREDITS -- MICROFINANCE FOR CLEAN ENERGY PRODUCT LINES - MONGOLIA

UNFCCC REF. NO. : 8142

Monitoring Period: 2013-08-01 to 2014-04-30
(incl. both days)

Report No: 8000445093 - 2015/026

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Date: 2015-09-15

Verification Report:	***Report No.***	***Rev. No.***	***Date of 1st issue:***	***Date of this rev.***
	8000445093 - 2015/026	1	2015-04-16	2015-09-15
Project:	***POA Title:***		***Registration date:***	***UNFCCC-No.:***
	MicroEnergy Credits -- Microfinance for Clean Energy Product Lines - Mongolia		2012-11-12	POA 8142
			Verification No.:	
			1st periodic verification	
	Crediting period of PoA:		***From:***	***To:***
	☒ *Renewable (7y)* ☐ *Fixed (10y)*		2012-11-12	2019-11-11
	Project Scale:			
	☐ *Large Scale* ☒ *Small Scale*			
	CPA title:			
	MicroEnergy Credits -- Microfinance for Clean Energy Product Lines - Mongolia - CPA No.001: XacBank LLC			
	Crediting period of CPA:		***From:***	***To:***
	☒ *Renewable (7y)* ☐ *Fixed (10y)*		2013-08-01	2020-07-31
Project Participant(s):	***Client:***		***Coordinating/Managing Entity***	
	MicroEnergy Credits		MicroEnergy Credits	
	Non Annex 1 country:		***Annex 1 country:***	
	Mongolia		UK	
	PP from non Annex 1 country:		***PP from Annex 1 country:***	
	XacBank LLC		MicroEnergy Credits	
Applied methodology/ies	***Title:***		***No.:***	***Scope(s) / TA(s)***
	Energy efficiency and fuel switching measures for buildings version 10		AMS-II.E. -ver. 10	3 /Energy demand

Monitoring period and monitoring report	***Monitoring period (MP):***			***Monitoring Report:***	
	From:	***To:***	***No. of days:***	***Draft version:***	***Final version:***
	2013-08-01	2014-04-30	273	2015-02-01	2015-07-18

Verification team / Technical Review and Final Approval:	***Verification Team:***	***Technical review:***	***Final approval:***
	Mr. LI Yongjun (TL)	Christina Stöhr(OR) Stefan Winter	Stefan Winter

Key dates of verification:	***Publication of MR :***	***DVerR issued:***	***On-site (from):***	***On-site (to):***
	2015-02-26	2015-03-22	1st: 2015-03-11 2nd: 2015-08-31	1st 2015-03-14 2nd 2015-09-03

Summary of Verification opinion

MicroEnergy Credits has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the PoA project: "MicroEnergy Credits -- Microfinance for Clean Energy Product Lines - Mongolia", with regard to the relevant requirements for CDM project activities.

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,

☒ 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, and

☒ 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 listed below (verified amount).			
Emission reductions: [t CO_{2e}]	***Total verified amount***	***As per draft MR:***	***As per PDD:***	
	31,767	37,628	50,133/a	
		ER achieved up to 2012-12-31	***ER achieved from 2013-01-01***	
		none	31,767	
Document information:	*Filename:*			*No. of pages:*
	FVerR_15026_final-15092015-clean.docx			87

Abbreviations:

CA	**Corrective Action / Clarification Action**
CAR	**Corrective Action Request**
CDM	**Clean Development Mechanism**
CER	**Certified Emission Reduction**
CO_2	**Carbon dioxide**
CO_{2eq}	**Carbon dioxide equivalent**
CL	**Clarification Request**
CPA	**Component Project Activity**
CPA-DD	**Component Project Activity Design Document**
DVerR	**Draft Verification Report**
ER	**Emission Reduction**
FAR	**Forward Action Request**
GHG	**Greenhouse gas(es)**
HES	**Household Energy Survey**
HH	**Household**
MP	**Monitoring Plan**
MR	**Monitoring Report**
PA	**Project Activity**
PDD	**Project Design Document**
PoA	**CDM Programme of Activities**
PoA-DD	**CDM Programme of Activities Design Document**
PP	**Project Participant**
QA/QC	**Quality Assurance / Quality Control**
UNFCCC	**United Nations Framework Convention on Climate Change**
VVS	**Validation and Verification Standard**
XLS	**Emission Reduction Calculation Spread Sheet**

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1. INTRODUCTION

MicroEnergy Credits has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the 1st periodic verification of the POA

"MicroEnergy Credits -- Microfinance for Clean Energy Product Lines - Mongolia"

with regard to the relevant requirements for CDM project activities. The verifiers have reviewed the implementation of the monitoring plan (MP) in the registered CDM project

GHG data for the monitoring period was verified in detailed manner applying the set of requirements, audit practices and principles as required under the Validation and Verification Standard /VVS/ of the UNFCCC.

This report summarizes the findings and conclusions of this 1st periodic verification of the above mentioned UNFCCC registered project activity.

1.1. Objective

The objective of the verification is the review and ex-post determination by an independent entity of the GHG emission reductions. It includes the verification of the:

- implementation and operation of the project activity as given in the PDD,
- compliance with applied approved methodology and the provisions of the monitoring plan,
- data given in the monitoring report by checking the monitoring records, the emissions reduction calculation and supporting evidence,
- accuracy of the monitoring equipment,
- quality of evidence,
- significance of reporting risks and risks of material misstatements.

1.2. Scope

The verification of this registered project is based on the validated project design document /POA-DD//CPA-DD/, the monitoring report /MR/, emission reduction calculation spread sheet /ER/, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

The verification is carried out on the basis of the following requirements, applicable for this project activity:

- Article 12 of the Kyoto Protocol /KP/,

- guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1 /MA/, and subsequent decisions made by the Executive Board and COP/MOP,
- other relevant rules, including the host country legislation,
- CDM Validation and Verification Standard /VVS/,
- monitoring plan as given in the registered PDD /POA-DD//CPA-DD/,
- Approved CDM Methodology.

2. GHG PROJECT DESCRIPTION

2.1. Technical Project Description of the Programme of Activities

The project activity is intended to replace:

- inefficient stoves for heating and cooking
- inefficient ger insulation

by installing and maintaining energy efficient products at household level.

The replacements are expected to reduce the consumption of fuel required to keep the house at a habitable temperature during heating season and subsequently reduce GHG emissions during combustion

Key project technology/installation is given in Table 2-1:

Table 2-1: Technical data of the project activity

Project activity	Unit	Type
Stove	-	- Silver Stove Mini (model 131) - Silver Stove Turbo (model 126) - Royal Stove Dul model (Royal Single model) - Royal Stove Golomt model (Royal Double model)
Ger blanket	-	- 4-walled model - 5-walled model double layer inside and a waterproof layer outside Six sections, including a special door covering and a section that covers the base of the ger on the outside

2.2. Technical Description of the Component Project Activities

The technologies adopted in the CPA-1 are identical with the technology defined in PoA-DD, i.e. install and maintain the energy efficient products at household level and then replace

- inefficient stoves for heating and cooking
- inefficient ger insulation

As per registered CPA-DD and the published monitoring report, 4,465 project stoves have been installed in houses and 14,173 project stoves have been installed in gers. And 1,270 walled model blankets have been installed.

The CPA starting date has been defined as the first installation of project stove, since the first installation of project activity completed on 2013-05-03 and the PoA considers only the fuel savings in heating season, the monitoring period of CPA-001 is started conservatively from 2013-08-01 afterwards and covers the heating season in Year 2013-2014, which is ended on 2014-04-30 (both days included).

2.3. Project Location

The details of the CPA location are given in table 2-2

Table 2-2: CPA(s) location

CPA No.: 001	Project Location	
Host Country	Mongolia	
Province	Ulaanbaatar	
City	Ulaanbaatar city	
Focal point	Latitude	Longitude
Ulaanbaatar	47.92^0N	106.92^0E

2.4. Project Verification History

Essential events since the registration of the project are presented in the following table 2-3

Table 2-3: Status of previous Monitoring Period

#	Item	Time	Status
1	1st Monitoring period	2013-08-01 to 2014-04-30	On-going

An overview of all Post Registration Changes is given in the following table.

Table 2-4: Overview Post Registration Changes

#	Applicable from – to / as of	MP	Type of post registration change [1)]	Description	Status[2)] / Date
1	2013-08-01 to 2014-04-30	1st	TDfrMP	Only efficient cooking and heating stoves are credited in 1st monitoring period. The home insulation product, i.e. the Ger blankets, has been implemented. However, due to the inability to accurately track product overlap in households, which is necessary to take cross-effects of the technologies into account. The correspondingly emission reductions have conservatively not been credited	Accepted by DOE

[1)] TDfrMP : Temporary deviation from registered monitoring plan
TDfMM : Temporary deviation from the monitoring methodology
CrPDD : Corrections to the registered PDD
PCfrMP : Permanent changes from registered Monitoring Plan

#	Applicable from – to / as of	MP	Type of post registration change [1)]	Description	Status[2)] / Date

PCfMM : Permanent changes from Monitoring Methodology
CoPD : Changes to the project design of a registered project activity

[2)] Approval (by EB) or Acceptance (by DOE)

3. METHODOLOGY AND VERIFICATION SEQUENCE

3.1. Verification Steps

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the monitoring report
- A desk review of the Monitoring Report /MR/ submitted by the client and additional supporting documents with the use of customised verification protocol /CPM/ according to the Validation and Verification Standard /VVS/,
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

3.2. Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3. Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, was appointed.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the Table 3-1 below.

Table 3-1: Involved Personnel

	Name	Company	Function [1)]	Qualification Status [2)]	Scheme competence [3)]	Technical competence [4)]	Verification competence [5)]	Host country Competence	On-site visit
☒ Mr. ☐ Ms.	LI Yongjun	TUV NORD	TL	SA	☒	3.1	☒	☐	☒
☐ Mr. ☒ Ms.	Christina Stöhr	TÜV Nord	OR[B)]	LA	☐		☐	☐	-
☒ Mr. ☐ Ms.	Stefan Winter	TÜV Nord	FA[B)]	SA	☒	3.1	☐	☐	-

1) TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval

2) GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert

3) GHG auditor status (at least Assessor)

4) As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, …)

5) In case of verification projects

A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE

B) No team member

All team members contributed to the review of documents, the assessment of the project activity and to the preparation of this report under the leadership of the team leader.

Statements of competence for the above mentioned team members are enclosed in annex 2 of this report.

3.4. Publication of the Monitoring Report

In accordance with the CDM M&P (§ 62) the draft monitoring report, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the verification activity commenced. Comments received are taken into account in the course of the verification, if applicable.

3.5. Verification Planning

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.

Risk analysis and detailed audit testing planning

For the identification of potential reporting risks and the necessary detailed audit testing procedures for residual risk areas table A-1 is used. The structure and content of this table is given in Table 3-2 below.

Table 3-2: Table A-1; Identification of verification risk areas

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)**
The following potential risks were identified and divided and structured according to the possible areas of occurance.	*The potential risks of raw data generation have been identified in the course of the monitoring system implementation.* *The following measures were taken in order to minimize the corresponding risks.* *The following measures are implemented:*	*Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of every verification.*	*The additional verification testing performed is described. Testing may include:* - *Sample cross checking of manual transfers of data* - *Recalculation* - *Spreadsheet 'walk throughs' to check links and equations* - *Inspection of calibration and maintenance records for key equipment* - *Check sampling analysis results* *Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.*	*Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.*

The completed table A-1 is enclosed in Annex 1 (table A-1) to this report.

Project specific periodic verification checklist

In order to ensure transparency and consideration of all relevant assessment criteria, a project specific verification protocol has been developed. The protocol shows, in a transparent manner, criteria and requirements, means and results of the verification. The verification protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet for verification
- It ensures a transparent verification process where the verifying DOE documents how a particular requirement has been proved and the result of the verification.

The basic structure of this project specific verification protocol for the periodic verification is described in Table 3-3.

Table 3-3: Table A-2; Structure of the project specific periodic verification checklist

Table A-2: Periodic verification checklist				
Checklist Item	***Reference***	***Verification Team Comments***	***Draft Conclusion***	***Final Conclusion***
The checklist items in Table A-2 are linked to the various require-ments the monitoring of the project should meet. The checklist is organised in various sections as per the requirements of the topic and the individual project activity. It further includes guidance for the verification team.	*Gives reference to the information source on which the assessment is based on.*	*The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the verification team and how the assessment was carried out. The reporting requirements of the VVS shall be covered in this section.*	*Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft verifi-cation stage.*	*In case of a corrective action or a clarification the final assessment at the final verification stage is given.*

The periodic verification checklist (verification protocol) is the backbone of the complete verification starting from the desk review until final assessment. Detailed assessments and findings are discussed within this checklist and not necessarily repeated in the main text of this report.

The completed verification protocol is enclosed in Annex 1 (table A-2) to this report.

3.6. Desk 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 and CPA-DD including the monitoring plan/PoA-DD//CPA-DD/,
- the last revision of the validation report/VAL/,

- documentation of previous verifications/VER/
- the monitoring report, including the claimed emission reductions for the project/MR/,
- the emission reduction calculation spreadsheet/XLS/.

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

3.7. On-site assessment

As most essential part of the verification exercise it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with the applicable criteria. Furthermore the on-site assessment is necessary to check the monitoring data with respect to accuracy to ensure the calculation of emission reductions. The main tasks covered during the site visit include, but are not limited to:

- The monitoring data were checked completely.
- An assessment of the implementation and operation of the registered component project activity as per the registered CPA-DD or any approved revision thereof;
- A review of information flows for generating, aggregating and reporting the monitoring parameters;
- The data aggregation trails were checked via spot sample down to the level of the meter recordings.
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the CPA-DD;
- A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PoA-DD, CPA-DD and the selected methodology and corresponding tool(s), where applicable;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;
- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The 1st on-site has been carried out from 11th to 14th March 2015, and in order to reply the comments raised by completeness check, (titled as Issuance request for PoA - 08142-IR1-SUB1 - information and reporting incomplete dated on 18th June

2015) an additional monitoring sampling survey has been conducted by project participant, and the 2nd on-site visit has been carried out by DOE from 30th Aug. to 03rd Sep. 2015, the revised monitoring date has been verified by means of acceptance sampling approach and interview.

Before and during the on-site visit the verification team performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

Representatives and operation staff of XacBank LLC, the representatives of Microenergy Credits were interviewed. The main topics of the interviews are summarised in Table 3 4..

Table 3-4: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
1. Projects & Operations Personnel 2. CME and project consultant 3. the house holders (house and Ger)	- General aspects of the project - Technical equipment and operation - Changes since validation verification - Monitoring and measurement parameters - Remaining issues from validation - Calibration procedures - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data collection management (the tracker system) - Design of sampling plan - The CPA inclusion status - Data uncertainty and residual risks - GHG emission reduction calculation - Procedural aspects of the verification - Maintenance - Environmental aspects - Stove operation and coal saving in project scenario - Project leakage (the disposal of replaced stove) - CPA locations

The list of interviewees is included in chapter 7.4.

3.8. Draft verification reporting

On the basis of the desk review, the on-site visit, follow-up interviews and further background investigation the verification protocol is completed. This protocol together

with a general project and procedural description of the verification and a detailed list of the verification findings form the draft verification report. This report is sent to the client for resolution of raised CARs, CLs and FARs.

3.9. Resolution of CARs, CLs and FARs

Nonconformities raised during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, if:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- Issues identified in a FAR during validation or previous verifications requiring actions by the project participants to be verified during verification have not been resolved.

The verification team uses the term Clarification Request (CL), which is be issued if:

- information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Forward Action Requests (FAR) indicate essential risks for further periodic verifications. Forward Action Requests are issued, if:

- the monitoring and reporting require attention and / or adjustment for the next verification period.

For a detailed list of all CARs, CLs and FARs raised in the course of the verification pl. refer to chapter 4.

3.10. Final reporting

Upon successful closure of all raised CARs and CLs the final verification report including a positive verification opinion can be issued. In case not all essential issues could finally be resolved, a final report including a negative verification opinion is issued.

The final report summarizes the final assessments w.r.t. all applicable criteria.

3.11. Technical review

Before submission of the final verification report a technical review of the whole verification procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer

is 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 be confirmed or revised. Furthermore reporting improvements might be achieved.

3.12. Final approval

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

After this step the request for issuance can be started.

4. VERIFICATION FINDINGS

In the following paragraphs the findings from the desk review of the monitoring report/MR/, the calculation spreadsheet/XLS/, PoA-DD and CPA-DD/PDD/, the Validation Report/VAL/ and other supporting documents, as well as from the on-site assessment and the interviews are summarised.

The summary of CAR, CL and FAR issued are shown in Table 4-1:

Table 4-1: Summary of CAR, CL and FAR

Verification topic	No. of CAR	No. of CL	No. of FAR
A – Description of project activity	2	0	0
B – Implementation of project activity	0	0	0
C – Description of monitoring system	2	0	0
D – Data and parameters	0	2	0
E - Calculation of Emission Reductions	0	0	0
SUM	**4**	**2**	**0**

The following tables include all raised CARs, CLs and FARs and the assessments of the same by the verification team. For an in depth evaluation of all verification items it should be referred to the verification protocols (see Annex).

Finding	**A1**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Temporary deviation from registered monitoring plan has been applied during the monitoring period.		

Finding	**A1**
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	In this monitoring period, only efficient cooking and heating stoves are credited. Ger blankets are conservatively not credited, though they are included in CPA No. 001 and may be credited in future monitoring periods. This is due to the current inability to accurately track product overlap in households, which is necessary to take cross-effects of the technologies into account. The MEC Tracker Platform contains a unique entry for every CEP purchased, identifiable by sysnum (See ANNEX 3 - MicroEnergy Credits Tracker Platform Summary). Each CEP entry in the database contains multiple identifying characteristics to ensure that the product is accurately tracked, including household address, client's government issued passport number, GPS coordinates, and ongoing usage status updated through monitoring, described in Stage 1 of Section F. The MEC Tracker Platform also contains information critical to crediting for each CEP, including CEP type, date of installation, and dwelling type. In order to credit two CEPs in the household, the MEC Tracker Platform must demonstrate the number of CEPs in the household, the order of installation, and the sysnum of the "sister" CEP (other CEP in household). The MEC Tracker Platform currently defines the household via a match of household identifiers in the database (address, passport number, name) to identify those households that have purchased multiple CEPs. At this time, the MEC Tracker Platform is partially incomplete with respect to the identification of households and therefore the number and details of multiple CEPs in households. As this affects crediting for each CEP, the CME conservatively chooses to not credit ger blankets in this monitoring period. In subsequent monitoring periods, this information shall be completed to enable crediting of both CEPs in two installation households. This temporary deviation does not require a request for prior approval by the Board, nor does it present a deviation from the applied methodology. ☐ Changes in MR | Section(s): | New version No.: ☐ Changes in XLS | Worksheet(s): | New version No.:
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The clarification of applied temporary deviation in monitoring period has been verified and assessed as reasonable. Since the deviation didn't have any influence on ER accuracy and conservative and therefore accepted by verification team. The temporary deviation is in line with the applied methodology the request for prior approval by the Board is not necessary.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding	**A2**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The latest version of POA-MR template, which is effective since 2015-04-01, could be used.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	The MR has been updated and the latest version is applied		
	☒ Changes in MR	Section(s):	New version No.:4
	☐ Changes in XLS	Worksheet(s):	New version No.:
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The updated MR has been checked and assessed to be in line with "Transitional measures from version 07.0 to version 09.0 of the PS, VVS and PCP" (https://cdm.unfccc.int/Reference/regulatory_revision_olddocs.html)		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed		

Finding	**C1**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Section C: The installation date (2011/12/13 as per purchasing order) of the audit sample （tracker system No. 82D22） in CPA-001, is earlier than project starting date.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	1) Household No.82D22 has been removed from the CPA. 2) Installation date of project stove has been defined as the starting date of CPA rather than order date 3) The installation date of all project stove has been checked by using if tracker system to ensure no project stove before the starting date of CPA has been included in this monitoring period. 4) The training on monitoring staff has been performed.		
	☐ Changes in MR	Section(s):	New version No.:
	☐ Changes in XLS	Worksheet(s):	New version No.:

Finding	C1
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The updated tracker data base has been verified by DOE, it could be confirmed that: 1) The household No.82D22 has been excluded from the 1st monitoring period. 2) Starting date is clearly and conservatively defined and in line with registered PoA-DD and CPA-DD 3) Updated data system (the tracker system) has been verified by DOE, no inclusion of household before CPA starting date has been detected.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding	C2		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Section C QA/QC procedure for trouble shooting should be further elaborated, especially for nonconforming cases for instance like: change of dwelling type, relocation of gers, involvement of other heating system in household,(i.e. captive heating pipeline/system), change of stove type, stove keep unused during the monitoring period, etc.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	1) Updated section C of monitoring report to reflect additional QA/QC measures to deal with non-conforming cases. 2) ER calculation has been revised and discount factor (7.9%) has been applied in ER calculation to reflect 3 non-conforming cases of 38 audit samples, demonstrated in section E. 3) The training on monitoring staff has been performed.		
	☒ Changes in MR	Section(s):C,E	New version No.:v.3
	☒ Changes in XLS	Worksheet(s):issuance 1	New version No.:v.2
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	1) QA/QC measures defined in MR have been reviewed by DOE and assessed as reasonable. 2) A discount rate has been applied in ER calculation. The influence might be caused by non-conforming samples has been limited. 3) Discount rate has been defined as the percentage between non-conforming samples and total audit samples.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed		

Finding	**D1**		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Section D: Further evidence from independent source for instance like purchasing receipt, local expert study result etc. should be used for the cross-checking of $C_{y,new,CEP-i}$ in MR section D.2		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	1) $C_{y,new,CEP-i}$ parameter box has been updated 2) The project intends to have a third party review of the HES to confirm coal consumption values derived from the survey in future rounds of HES.		
	☒ Changes in MR	Section(s):D	New version No.:v.3
	☐ Changes in XLS	Worksheet(s):	New version No.:
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The $C_{y,new,CEP-i}$ is derived from the HSE report, which is finalized by 3rd party project consultant. The applied value (3.52 t coal/HH/heating season for house stove and 3.22 t coal/HH/heating season for Ger stove) has been cross verified by DOE by taking the inputs from "baseline fuel consumption analysis"/BFCA/, MCA Mongolia Household Survey/HHS/ and Fuel Vendor Survey report/FVS/ into account. The applied value is assessed as appropriate.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed		

Finding	**D2**		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Section D: The adjustment of $N_{,all}$ according to the actual operation days during the given monitoring period should be further elaborated by taking the starting of crediting period (2013/08/01) into account.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	The N_{all} parameter box has been updated and includes 'Total CEP Heating Seasons' reflecting the adjusted N_{all} value applied in ER calculations, based on the actual operation days of each CEP.		
	☒ Changes in MR	Section(s):D	New version No.:v.3
	☐ Changes in XLS	Worksheet(s):	New version No.:
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The adjustment of $N_{,all}$ has been provided in revised monitoring report, "Total CEP-Heating Seasons" has been provided and in line with Household Energy Survey Fuel Consumption and Usage Report in 2013-2014/HES/.		

Finding	D2
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

5. SUMMARY OF VERIFICATION ASSESSMENTS

The following paragraphs include the summary of the final verification assessments after all CARs and CLs are closed out. For details of the assessments pl. refer to the discussion of the verification findings in chapter 4 and the verification protocol (Annex 1).

5.1. Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity.

Table 5-1: Project Parties and project participants

Characteristic	Party	Project Participant
Non-Annex 1	Mongolia	XacBank LLC
Annex 1	UK	MicroEnergy Credits

5.2. Implementation of the project

During the verification a site visit of selected samples 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 components/equipment, as well as the monitoring of the project has been implemented and operated as described in the registered PoA-DD and CPA-DD.

5.3. Project history

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. No such issues were identified for this project.

Furthermore as this is the 1st periodic verification no issues from former verifications are to be considered.

5.4. Post registration changes

No post registration changes applicable for this monitoring period have been observed during the monitoring period.

5.5. Compliance with the monitoring plan

The monitoring system and all applied procedures are completely in compliance to the registered monitoring plan.

5.6. Compliance with the monitoring methodology

The monitoring system is in compliance with the applied monitoring methodology (AMS- II.E. ver. 10).

5.7. Monitoring parameters

During the verification all relevant monitoring parameters (as listed in chapter B.7.1 of the PoA-DD and CPA-DD) have been verified with regard to the appropriateness of the applied measurement and 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. (please refer to table A-2, section D.2 for detailed assessment)

No calibrations have been required for monitoring parameters as per table given in Annex 3 to this report.

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.

5.8. Monitoring report

A draft monitoring report was submitted to the verification team by the project participants. The team has made this report publicly available prior to the start of the verification activities. No comments were received.

During the verification, mistakes and needs for clarification were identified. The PP has carried out the requested corrections so that it can be confirmed that the Monitoring report is complete and transparent and in accordance with the registered PoA-DD, CPA-DD and other relevant requirements.

5.9. Sampling

5.9.1. Implementation of the sampling plan

Simple random sampling method (classified by dwelling type and districts has been applied to determine the monitored parameters (N_{all}, POF, $C_{y,new,CEP-i}$, and $C_{y\_old,CEPi}$).

A 3rd party document/HES/ has been referenced for the design, the sampling and to determine the parameters.

According to the applied methodology and relevant requirements for sampling " Guidelines for sampling and survey for CDM project activities", since the project proponent decided to inspect at least every 2 years, therefore sample size has been determined by choosing a 90/10 precision (90% confidence interval and 10% margin of error). The dwelling type is decisive for coal consumption and 2 dwelling types have been involved in the CPA. In order to control the variation in dwelling type and improve the precision of the estimate of parameters, the households were classified into two clusters, i.e. house and ger. By further taking the possible low response rate and answers bias into account, 50% oversampling has been applied, the sample size has been concluded as 185 in 1st sampling survey.

To reply the comments raised during the information and completeness check, the sampling approach has been revised and 2nd sampling survey has been planned and implemented by project participant as elaborated below:

According to 2nd baseline survey/HES-V2/, since the coal consumption varies with dwelling type and district, six sampling frames have been determined for sampling: namely:

Frame 1: Stove in house dwelling type, located in Songinokhairkhan district
Frame 2: Stove in house dwelling type, located in Bayangol district
Frame 3: Stove in house dwelling type, located in other district
Frame 4: Stove in ger dwelling type, located in Songinokhairkhan district
Frame 5: Stove in ger dwelling type, located in Bayangol district
Frame 6: Stove in ger dwelling type, located in other district

By further checking the sampling procedure/SP/ and the survey report/ HES-V2/, it could be concluded that the sampling is in line with the applied methodology and sampling guideline.

The sampling is in compliance with the registered PoA-DD and CPA-DD.

5.9.2. Sampling approaches during verification

Para. 60 (a) of the "Guidelines for sampling and survey for small-scale CDM project activities", and standard for sampling and survey for CDM project activities and programme of the activities (version 04.1) have been applied and followed when designing the 1st and 2nd on-site sampling of this verification.

Since the CPA included in the PoA implements technologies/measures with high degree of standardisation/para56/ and the stove capacities in the CPA are smaller than 1% of small scale CDM thresholds/para57/, the verification team decided to draw samples from the project samples selected by PP. i.e. the acceptance sampling approach has been applied both in 1st and 2nd on-site visit.

1st on-site sampling:

Guidelines for sampling and survey for small-scale CDM project activities has been applied. And 48 samples for houses and 60 samples for gers have been randomly selected by taking the possible low response rate into account.

AQL1%, UQL 10%, product risk 5% and consumer risk 5% have been adopted as per standard for sampling and survey for CDM project activities and programme of the activities, during the data quality check by DOE.

2nd on-site sampling:

66 samples have been selected on a random basis by taking the CEP type and location into account, the same accuracy level i.e. AQL1%, UQL 10%, product risk 5% and consumer risk 5% have been adopted.

In total, 127 samples have been randomly selected by verification team during the 1st and 2nd site visit, the sampling plan and sampling results have been summarized as below:

Table 5-2: Applied sampling standard

AQL	1%
UQL	10%
Acc No.	2
Producer risk	5%
Comsumer risk	5%
Confidence level	90%
Margin of error	10%

Table 5-3: the sampling implementation and summary

	1st sampling			2nd sampling			total		
	PP survey	VT	Sampling %	PP survey	VT	sampling %	PP survey	VT	sampling %
Ger-Song.	16	5	31%	15	8	53%	31	13	42%

Ger-Bayan.	12	8	66%	29	22	76%	41	30	73%
Ger-Other	54	9	17%	6	6	100%	60	15	25%
House-Song.	24	15	63%	0	0	0%	24	15	63%
House-Bayan.	14	4	29%	38	30	79%	52	34	65%
House-Other	65	20	31%	0	0	0%	65	20	31%
TOTAL	185	61	32%	88	66	75%	273	127	**47%**

The verification team is able to confirm: 1) all the sampled project stoves are in operation in monitoring period/IM03//IM01/; 2) the coal savings concluded (i.e the difference between $C_{y,new,CEP-i}$, and $C_{y\_old,CEPi}$) in final monitoring report in sampled frames are less than the results archived by verification team/VT-R2/; 3) amongst the chosen samples, c=0, which is less than 2 as defined in sampling standard, and the required confidence/precision 90/10 has been met/VT-R2//HES-V2/.

5.10. ER Calculation

The emission reductions of CPA have been calculated as per the guidance of the methodology AMS II.E. Version 10.

$$ERy = \sum_{o}^{i} BEy,CEPi - PEy,CEPi$$

Where:

ER_y: Emission reductions during the year y

$BE_{y,\ CEPi}$: Baseline emissions for CEP_{-i} during the year y

$PE_{y\ ,CEPi}$: Project activity emissions for CEP_{-i} during the year y for technology i

Since the emission reductions from ger blankets have not been claimed for 1st period verification, $BE_{y,\ CEPi}$ and $PE_{y\ ,CEPi}$ are determined as per the formula below:

$BE_{y.CEP-I} = C_{y,old,CEP-i} * NCV_{coal} * EF_{coal}$

$PE_{y,,CEP-I} = C_{y,new,CEP-i} * NCV_{coal} * EF_{coal}$

Where:

$C_{y,old,CEP-i}$: Quantity of coal used in the heating season in the absence of the project activity

$C_{y,new,CEP-i}$: Quantity of coal used in the heating season used during the project activity

NCV_{coal}: Net calorific value of coal

EF_{coal}: Emission factor for the amount of CO2e resulting from the combustion of coal

BE_y, PE_y, and ER_y are calculated for six frames as below:

Table 5-4: ERy by dwelling category

Dwelling Type	BE_y (tCO_2e/HH)	PE_y (tCO_2e/HH)	ER_y (tCO_2e/HH)
House-Song.	10.30	6.42	3.88
House-Bayan.	7.67	6.08	1.60
House-Other	9.65	6.23	3.42
Ger-Song.	9.50	6.62	2.89
Ger-Bayan.	6.88	5.02	1.86
Ger-Other	8.85	6.17	2.68

Table 5-5 value applied for ER calculation

Parameter	Unit	Applied value	Remark/source
NCV_{coal}	TJ/t	0.0189	IPCC 2006/ fixed ex-ante
EF_{coal}	tCO2/TJ	96.1	IPCC 2006/ fixed ex-ante
$C_{y\_old,CEPi}$	t coal/ HH/Heating Season	House-Song 5.67 House-Bayan 4.23 House-other 5.31 Ger-song 5.23 Ger-Bayan 3.79 Ger other 4.87	Ex-ante
N_{all}	-	1. House-Song. 1,148 2. House-Bayan. 990 3. House-Other 2,360 4. Ger-Song. 4,594 5. Ger-Bayan.1,953 6. Ger-Other 7,593	HES survey report/ monitored
POF	%	House-Song 96	HES survey report/

Parameter	Unit	Applied value	Remark/source
		House-Bayan 92 House-other 95 Ger-song 90 Ger-Bayan 93 Ger other 93	monitored
$C_{y,new,CEP-i}$	t coal/ HH/Heating Season	1. House-Song. 3.54 2. House-Bayan. 3.35 3. House-Other 3.43 4. Ger-Song. 3.64 5. Ger-Bayan. 2.76 6. Ger-Other 3.40	HES survey report/ monitored
$T_{y,s}$ household stoves and/or insulation	°C	Autumn(August-October 2013): 7.5 Winter (November 2013 - January 2014): -18.2 Spring (February- April 2014): -7.2	(US) National Climatic Data Center Climatic Service Branch of the National Oceanic and Atmospheric Administration (NOAA).
$WS_{y,s}$ household stoves and/or insulation	Knot	Autumn(August-October 2013): 5.5 Winter (November 2013 - January 2014): 3.0 Spring (February- April 2014): 5.5	(US) National Climatic Data Centre Climatic Service Branch of the National Oceanic and Atmospheric Administration (NOAA).
η_{new}	%	**Stove Type** / η_{new} Royal Single/Mini Dul 74.3% Royal Double/Golomt 75.8% Silver Turbo/Khas 77.0% Silver Mini/ Ulzii 76.2%	Stove Emissions and Efficiency Testing Laboratory in Ulaanbaatar Mongolia.

Leakage:

Leakage should be considered if the displaced baseline stove is not dismantled or if it is put to a secondary purpose that does not involve cooking or heating. The CPA aims to dismantle 100% of old stoves. According to real project implementation and operating procedures, the old stoves have been collected by the XacBank representative at time of installation and stored and will be dismantled for metal recycling. The leakage caused by the displaced stove has been therefore ignored.

Leakage should be accounted in case the NRB consumption in project scenario is higher than baseline scenario. Since the wood is used as a starter fuel in the use of both baseline stoves and efficient stoves. And according to HES survey report, the

consumption of wood in the project scenario was monitored and the results evidenced that consumption did not increase as a result of using the efficient stove. The correspondingly leakage has been ignored.

During this verification no mistakes in the ER calculation has been identified. The ER calculation is overall correct and in line with registered PoA-DD, CPA-DD and the applied methodology.

5.11. Quality Management

Quality Management procedures for data collection and compilation, data storage and archiving, sampling design, maintenance and training of personnel in the framework of this CDM project activity have been defined. The procedures defined can be assessed as appropriate for the purpose. No significant deviations thereof have been observed during the verification.

5.12. Actual emission reductions during the first commitment period and the period from 1 January 2013 onwards

The MR includes actual ER values achieved up to 31 December 2012 and actual values achieved from 1 January 2013 onwards as follows:

Table 5-6: Emission reductions before and after the end of 2012

	until 2012-12-31 [1)]	from 2013-01-01 [1)]	Sum
Emission reductions [tCO_{2e}]	0	31,767	31,767

[1)] Both days included

5.13. Comparison with ex-ante estimated emission reductions

The MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the registered PDD.

The calculated value was found to be proportionally lower than the ex-post determined value, thus no further justification was required.

5.14. Overall Aspects of the Verification

All necessary and requested documentation was provided by the project participants so that a complete verification of all relevant issues could be carried out.

Access was granted to all installations of the plant which are relevant for the project performance and the monitoring activities.

No issues have been identified indicating that the implementation of the project activity and the steps to claim emission reductions are not compliant with the UNFCCC criteria and relevant guidance provided by the COP/CMP and the CDM EB (clarifications and/or guidance).

5.15. Hints for next periodic Verification

No FAR raised for consideration during the next verification.

6. VERIFICATION AND CERTIFICATION STATEMENT

MicroEnergy Credits has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the PoA project: "MicroEnergy Credits -- Microfinance for Clean Energy Product Lines - Mongolia", with regard to the relevant requirements for CDM project activities.

The project reduces GHG emissions due to replacements: i) the using of inefficient stove for heating and cooking and ii) the inefficient Ger insulation, by installing and maintaining energy efficient product at household level. This verification covers the period from 2013-08-01 to 2014-04-30(including both days).

This verification covers the emission reductions achieved by the single CPA (No. CPA-8142-001) in its corresponding monitoring period:

In the course of the verification 4 Corrective Action Requests (CAR) and 2 Clarification Requests (CL) were raised and successfully closed. No FARs is raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, and the monitoring plan as set out in the registered PoA-DD, CPA-DD, the validation report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

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-II.E. -ver. 10
- 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.

As the result of the 1st 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: 31,767 t CO_{2e}

Lanzhou, 2015-09-15

LI Yongjun

TÜV NORD JI/CDM Certification Program

Essen, 2015-09-15

Stefan Winter

TÜV NORD JI/CDM Certification Program

Final Approval

7. REFERENCES

Table 7-1: Documents provided by the project participant(s)

Reference	Document
/AG/	CER purchasing agreement
/BFCA/	Baseline Fuel Consumption Analysis
/DB/	the MicroEnergy Credits Tracker Database
/ER/	Emission reduction calculation V4, dated on 2015-07-19 Emission reduction calculation V1, dated on 2015-03-05
/FVS/	Fuel Vendor Survey
/HES/	Household Energy Survey: Fuel Consumption and Usage Report in 2013-2014
/HES-V2/	Household Energy Survey: Fuel Consumption and Usage Report Ver.02 , dated on July 2015
/HES-DA/	Household Energy Survey data analysis
/HHS/	Mongolia Household Survey Report 2011
/MAP/	The map of areas covered in verification sampling
/MR/	The monitoring report V01, dated on 2015-03-05 The monitoring report V04, dated on 2015--07-18
/SDP/	Stove Dismantling Procedure
/SP/	Sampling plan for 1st monitoring period
/SPD/	Stove purchasing and delivery document
/STP/	Stove Testing Report
/TC/	Training and competence building work plan

Reference	Document
/TPS/	MicroEnergy Credits Tracker Platform Summary

Table 7-2: Background investigation and assessment documents

Reference	Document
/AMS/	AMS-II.E. - Energy efficiency and fuel switching measures for buildings version 10
/CPA-DD/	COMPONENT PROJECT ACTIVITIES DESIGN DOCUMENT titled" MicroEnergy Credits -- Microfinance for Clean Energy Product Lines – Mongolia- CPA No.001"
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/IPCC/	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book
/KP/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)
/MRT/	Monitoring Report Form (CDM-MR-FORM), Version 4.0
/PoD-DD/	PROGRAMME OF ACTIVITIES DESIGN DOCUMENT titled: "MicroEnergy Credits -- Microfinance for Clean Energy Product Lines – Mongolia"
/PS/	CDM Project Standard (Version 7.0)
/SSC-SP/	- Standard for sampling and survey for CDM project activities and programme of the activities - Sampling and surveys for CDM project activities and programme of activities
/VAL/	Validation Report for PoA project "MicroEnergy Credits -- Microfinance for Clean Energy Product Lines - Mongolia" report No.2012-9655
/VT-R2/	Sampling result and summary by verification team

Reference	Document
/VVS/	CDM Validation and Verification Standard (Version 07.0)

Table 7-3: Websites used

Reference	Link	Organisation
/dna-MG/	http://cdm-mongolia.com/	DNA: the Ministry of the Environment and Green Development of Mongolia
/TRACKER/	http://tracker3.microenergycredits.net/admin/xac	Project participant
/unfccc/	http://cdm.unfccc.int	UNFCCC
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications

Table 7-4: List of interviewed persons

Reference	MoI[1]		Name	Organisation / Function
/IM01/	V	☒ Mr. ☐ Ms	Sriskandh Subramanian	MicroEnergy Credits/ Head of Carbon and Sustainability
/IM01/	V	☐ Mr. ☒ Ms	Tuul Galzagd	XAC bank/dept. director
/IM01/	V	☒ Mr. ☐ Ms	Ryan Calvert	XAC bank/project development officer
/IM01/	V	☒ Mr. ☐ Ms.	Noah Elbot	XAC bank/project development officer
/IM01/	V	☒ Mr. ☐ Ms.	Bat Byambasuren	XAC bank/monitoring officer
/IM01/	V	☐ Mr. ☒ Ms.	Batsanaa Batchuluun	XAC bank/project development officer
/IM02/	T	☐ Mr. ☒ Ms.	Megan O'Neil	Independent survey study provider/project consultant
/IM03/	V	☒ Mr.	Sampled house holders	Please refer to the on-site interview

Reference	MoI[1]		Name	Organisation / Function
		☐ Ms.		memo

[1)] Means of Interview: (**T**elephone, **E**-Mail, **V**isit)

ANNEX

A1: Verification Protocol

A2: (Project specific) Periodic Verification Checklist

A3: Statements of Competence of involved Personnel

ANNEX A1: VERIFICATION PROTOCOL

Table A-1: GHG calculation procedures and management control testing / detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
Raw data generation				
• Installation of measuring equipment • Dysfunction of installed equipment • Maloperation by operational personnel • Downtimes of equipment • Exchange of equipment • Change of measurement equipment characteristic • Insufficient accuracy • Change of technology	• Installation of modern and state of the art equipment • Process control automation • Internal data review • Regular visual inspect-ions of installed equip-ment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment • Stand-by duty is	• Inadequate installation / operation of the monitoring equipment • Inadequate exchange of equipment • Change of personnel • Undetected measurement errors • Inappropriateness of Management system procedures w.r.t. monitoring plan requirements (e.g. substitute value strategies) • Non-application of management system procedures • Insufficient accuracy • Inappropriate QA/QC	• Site – visit • Check of equipment • Check of technical data sheets • Check of suppliers information / guarantees • Check of calibration records, if applicable • Check of maintenance records • Counter-check of raw data and commercial data • Check of CDM management system • Check of CDM related procedures	• **See Table A-2**

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
• Accuracy of values supplied by Third Parties	organized • Training • Internal audit procedures • Internal check of QA/QC measures of involved Third Parties	measures of Third Parties	• Application of CDM management system procedures • Check of trainings • Check of responsibilities • Check of QA/QC documentation / evidence of involved Third Parties	
Raw data collection and data aggregation				
• Wrong data transfer from raw data to daily and monthly aggregated reporting forms • IT Systems • Spread sheet programming • Manual data transmission • Data protection • Responsibilities	• Cross-check of data • Plausibility checks of various parameters. • Appropriate archiving system • Clear allocation of responsibilities • Application of CDM Management system procedures • Usage of standard software solutions	• Unintended usage of old data that has been revised • Incomplete documentation • Ex-post corrections of records • Ambiguous sources of information • Non-application of management system procedures • Manual data transfer mistakes	• Check of data aggregation steps • Counter-calculation • Data integrity checks by means of graphical data analysis and calculation of specific performance figures • Check of management system certification • Check of data archiving system	• **See Table A-2**

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
	(Spreadsheets) • Limited access to IT systems • Data protection procedures	• Unintended change of spread sheet programming or data base entries • Problems caused by updating/upgrading or change of applied software	• Check of application of Management system procedures	
Other calculation parameters				
• Emission factors, oxidation factors, coefficients	• The values and data sources applied are defined in the PDD and monitoring plan	• Unintended or intended Modification of calculation parameters • Wrong application of values • Misinterpretations of the applied methodology and/ or the PoA-DD, CPA-DD • Missing update of applicable regulatory framework (e.g. IPCC values)	• Update-check of regulatory framework • Countercheck of the applied MP in the MR against the methodology and the PDD	• **See Table A-2**
Calculation Methods				

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
• Applied formulae • Miscalculation • Mistakes in spread-sheet calculation	• Advanced calculation and reporting tools • A CDM coordinator is in charge of the CDM related calculations • Usage of tested / counterchecked Excel spreadsheets • Involvement of external consultants	• The danger of miscal-culation can only be minimized.	• Countercheck on the basis of own calculation. • Spread sheet walk-trough. • Plausibility checks • Check of plots	• **See Table A-2**
Monitoring reporting				
• Data transfer to the author of the monitoring report • Data transfer to the monitoring report • Unintended use of outdated versions	• An experienced CDM consultant is responsible for monitoring reporting. • CDM QMS procedures are defined	• The danger of data transfer mistakes can only be minimized • Inappropriate application of QMS procedures	• Counter check with evidence provided. • Audit of procedure application	• **See Table A-2**

Table A-2: (Project specific) Periodic Verification Checklist

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
A. Description of the PoA and its component project activity (-ies)				
A.1. Purpose and general description of the PoA and CPA(s) ***(EB 75, Annex 7, A.1)*** *Check if section A.1 of the MR includes the following:* - *Purpose of the PoA and each CPA and the measures taken to reduce GHG emissions* - *Brief description of the installed technology and equipment* - *Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods etc.)* - *Total emission reductions achieved in this monitoring period*	/MR/ /PoA/ /CPA-DD/	The verification team has checked section A.1 of the MR and confirms that the information provided is complete and correct with regards to the following: ☒ Purpose of the PoA and its CPA(s) and the measures taken to reduce GHG emissions ☐ Brief description of the installed technology and equipments ☒ Relevant dates for the CPAs (e.g. construction, commissioning, continued operation periods, CPA inclusion, etc) ☒ Emission reductions achieved in this monitoring period by each CPA and total emission reductions achieved by the PoA	OK	OK
A.2. Location of project activity ***(EB 75, Annex 7, A.2)*** *Check if section A.2 of the MR reflects correctly the following:* - *Host Party(ies)* - *Region / State / Province etc.*	/MR/ /CPA-DD/ /IM01/ /IM02/	The verification team has checked section A.2 of the MR and confirms by means of comparison with the information given in the CPA-DD and information gathered during the site visit that the information provided is complete and correct with regards to the following: ☒ Host Party(ies) ☒ Region / State / Province	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
- *City / Town / Community etc.* - *Physical / geographical location (e.g. Latitude and Longitude)*		☒ City / Town / Community ☒ Physical / Geographical location		
A.3. Parties and Project Participants ***(EB 75, Annex 7, A.3)*** *Check if section A.3 of the MR includes the following:* - *All PPs as displayed on the UNFCCC website* - *A correctly filled table as per the MR template*	/MR/ /unfccc/	The verification team has checked section A.3 of the MR as well as the UNFCCC website and confirms that: ☒ all PPs as displayed on the project related UNFCCC website are correctly listed ☒ the table as per the template MR has been correctly filled	OK	OK
A.4. Reference of applied methodology ***(EB 75, Annex 7, A.4)*** *Check if section A.4 of the MR correctly describes / includes the following:* - *Reference to the applicable version of the methodology* - *Reference to the applicable version(s) of relevant methodological tools* - *Relevant EB decisions, if applicable*	/MR/ /CPA-DD/ /unfccc/	The verification team has checked section A.4 of the MR and confirms by means of comparison with the information given in the CPA-DD and displayed on the UNFCCC website that the information provided is complete and correct with regards to the following: ☒ Number, title and version of the applicable CDM Methodology ☒ Name and version of applicable CDM methodological tools ☒ Relevant EB decisions	OK	OK
A.5. Crediting period of project activity	/MR/	The verification team has checked section A.5 of the MR(s) and confirms by means of comparison with the information displayed	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
(EB 75, Annex 7, A.5) *Check if section A.5 of the MR correctly includes the following:* - *Start date of the crediting period. In this context please check, if applicable, whether post registration changes to the start date have been accepted by the EB.* - *Length and type of the crediting period*	/unfccc/	on the UNFCCC website that the information provided is complete and correct with regards to the following: ☒ Start date of the crediting period. ☒ Type and length of the crediting period		
A.6. Publication of the Monitoring Report ***(VVS, § 207; PCP, § 177)*** *Check if the monitoring report has been made publicly available on the UNFCCC website at least 14 days before the verification commenced.* *Check if comments have been received and if yes, how they have been addressed.*	/MR/ /unfccc/	The verification team has ensured and confirms by means of checking the respective project information on the UNFCCC website that: ☒ The draft monitoring report, as received from the project participants, has been made publicly available prior to the start of the verification activities. ☒ No comments have been received.	OK	OK
A.7. Compliance with standardized format of the Monitoring Report ***(VVS, § 212 e)*** *Check (only) if the latest applicable MR template has been used. For compliance assessment with the MR guideline pl. refer to the respective MR sections.*	/MR/	The verification team has checked all sections of the MR and confirms by means of comparison with the MR template that: ☒ the standardized MR template has been used In this context the following finding has been identified: CAR A2 has been raised.	~~CAR A2~~	OK
B. Implementation of project activity				

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
B.1. Description of implemented registered programme of activities ***(EB 75, Annex 7, B.1)*** *Check if section B.1 of the MR correctly describes / includes the following:* - *Implementation status of the PoA and its CPAs* - *Detailed description of installed technology(ies) / technical processes and equipment applied* - *Diagrams (where appropriate)* - *Whether a single report or two MR are prepared; in case of two MR, check that all CPAs are considered in two separate batches*	/MR/ /PoA/ /CPA1)	The verification team has checked section B.1 of the MR(s) and confirms by means of comparison with the information given in the PoA-DD and CPA-DD(s), the project standard and information gathered during the site visit that: ☒ the description of the implementation status of the CPA(s) is in line with the applicable provisions of the project standard ☒ an appropriate description of the installed technology(ies), technical process and equipment incl. diagrams, where applicable, has been included ☒ one single MR has been provided including all CPAs, OR ☐ two different MRs are prepared including all CPAs and information on the reference numbers of the CPAs that are included in each batch.	OK	OK
B.1.1. Initial project implementation ***(VVS; § 225 a, 226)*** *Assess whether the CPA has been implemented and operated as per the registered CPA-DD and are all physical features of the project in place.* *Further focus on the potential phase wise implementation and check the reporting on the corresponding status and starting dates accordingly.* *Check if the project is still in compliance with the*	/MR/ /CPA-DD/ /IM02/	*Description:* The project has been implemented as described according to the registered CPA-DD. The dates of the implementation is listed in the MR. The project activity has been fully commissioned and started operation since 2013-05-03. *Verifier's action:* During the site visit, the verification team has checked the commissioning and start operation date of the CPA	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
applicability conditions of the methodology. *Also, discuss – if applicable – the necessity of PRC notifications / approvals.*		The stove within the project boundary were checked and compared with the registered CPA-DD and technical specification. The sampled stoves were in operation during the onsite assessment. Project and operation personnel were interviewed. *Conclusion:* The CPA is implemented in accordance to the registered CPA-DD.		
B.1.2. Technical equipment changes ***(VVS; § 225 a, 226)*** *Check if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period. Further ensure that consistent notations of key equipment (meters etc.) in MR and calculation spreadsheet are applied* *Consider e.g. interviews with operational personnel, QMS records, maintenance records, instrument specifications.* *In case of changes, check whether the project is still in line with the registered CPA-DD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.* *In case of post registration changes pl. refer to chapter B.2.*	/MR/ /CPA-DD/	*Description:* The description of the technical equipment of this project has been provided in of MR. *Verifier's action:* The technical specifications/type of stove have been inspected and checked during onsite on a sampling basis. . The stove within the project boundary were checked and compared with the registered CPA-DD. *Conclusion:* No changes and modification occurred	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
B.1.3. Operation of the project activity ***(VVS; § 225 a, 226)*** *Check if relevant operation modes of the project activity have been exchanged or modified during the monitoring period.* *Consider e.g. interviews with operational personnel, operation log sheets, data management system records.* *In case of changes, check whether the project is still in line with the registered CPA-DD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.* *In case of post registration changes pl. refer to chapter B.2.*	/MR/	*Description:* The project activity started operation on 2012-05-03, (the date of 1st stove installation completion and in operation) The stoves will be utilized for cooking and heating purposes and therefore displace the baseline stoves, that are insufficient. *Verifier's action:* By means of interviews with the operational personnel, physical on-site check, review and checks of the stove installation and delivery form and bank transfer note form, it can be confirmed and evidenced that there is no change in operation modes since operation begins on 2012-05-03. Furthermore, the Monitoring Manual was reviewed. It can be confirmed that the monitoring is in accordance with the manual and no change could be found. *Conclusion:* It is concluded that there is no change in the operation mode of the project activity.	OK	OK
B.1.4. Incidents ***(VVS; § 225 a, 226)*** *Identify if there have been any significant incidents, deviant operation modes and / or downtimes of the equipment?* *Consider e.g. interviews with operational personnel, operational log sheets, analysis of performance data.*	/MR/ /IM01/ /IM02/	*Description:* It was verified during the site visit there was no incident happen during the monitoring period *Verifier's action:* The CME officer, the monitoring officer, the householder and project consultant (the survey study provider) were interviewed to confirm there were no incident as stated above. *Conclusion:*	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		It is confirmed, no accident occurred during this monitoring period.		
B.1.5. Legislation Find out – esp. in the context of methodological requirements - whether relevant legislation with effect on the project activity in the host country has been changed. Assess, in case of changes, whether consequences for the PA with regard to relevant CDM requirements have been accounted for. In case of changes data sources shall be referenced.	/MR/	*Description:* The project activity had obtained relevant approvals and technical acceptance documentation to operate: e.g. the stove quality check and acceptance *Verifier's actions:* The relevant approvals were checked by the verification team and with the local knowledge, it is found to be satisfactory. *Conclusion:* It is concluded that the project activity had met all the necessary host country approval.	OK	OK
B.1.6. Open issues from validation ***(VVS; § 213)*** *Check (esp. in case of 1st periodic verification) whether there are any open issues indicated in the validation report (e.g. FAR)?*	/VAL/	☒ There were no open issues addressed in the validation report ☐ All open issues from the validation have been appropriately addressed. ☐ The following issues related to the validation have not yet been appropriately addressed:	OK	OK
B.1.7. Open issues from previous verification ***(VVS; §§ 213; 284 h)*** *Check in case of further periodic verifications whether there are any open issues indicated in previous verification reports (FAR) and take into consideration*	/MR/	☐ There were no open issues addressed in the previous verification report ☐ All open issues from the previous verification have been appropriately addressed. ☐ The following issues related to the previous verification have not yet been appropriately addressed:	NA	NA

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
the guidance as specified in VVS.				
B.2. Post registration changes				
B.2.1. Post registration changes applicable to the proposed project activity *Indicate whether any post registration change already approved or under approval by the UNFCCC has been identified.*	/MR/ /CPA-DD/ /unfccc/	☒ No, by means of site visit, document check and interview it could be verified that the project is implemented and operated in line with the registered CPA-DD and the applied methodology. (Please proceed with section C) ☐ Yes, post registration changes have been identified and are assessed in detail in the subsequent steps. (Please proceed with B.2.2.)	OK	OK
B.2.2. Temporary deviations from the registered monitoring plan or applied methodology (TDfrMP; TDfMM) ***(EB 75, Annex 7, B.2.1; VVS §§ 251 - 256)*** *Indicate whether any temporary deviations have been applied during this monitoring period.* *In cases where approval has been sought from the EB please provide reference.* *If applied, provide a description of the deviation(s).* *This should include the reasons for the deviation(s), how it deviates from the monitoring plan and/or applied methodology(ies), the duration for which the deviation(s) is(are) applicable and justification on the conservativeness of the approach. Indicate if the deviation will lead to a reduction in the accuracy and if so, which conservative assumptions and discount*	/MR/ /CPA-DD/ /unfccc/	☒ No TDfrMP or 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; Appr.date: ; Ref. No.: 2 Title: ☐ Status: ☐ under approval; ☐ approved; Appr.date:	~~CAR A1~~	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
factors have been applied. *For deviation(s) that require prior approval by the Board, include the date of approval and reference number.*		<table><tr><td></td><td></td><td>Ref.No.</td><td></td></tr><tr><td>☐</td><td colspan="3">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</td></tr><tr><td>☐</td><td colspan="3">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.</td></tr><tr><td></td><td>1</td><td>Issue:</td><td></td></tr><tr><td></td><td>2</td><td>Issue:</td><td></td></tr><tr><td>☐</td><td colspan="3">The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied:</td></tr><tr><td></td><td>1</td><td>Issue:</td><td></td></tr><tr><td></td><td>2</td><td>Issue:</td><td></td></tr></table> In this context no findings have been identified: CAR A1 has been raised. Only efficient cooking and heating stoves are credited in 1st monitoring period. Ger blankets have conservatively not been credited, due to the inability to accurately track product overlap in households, which is necessary to take cross-effects of the technologies into account.		
B.2.3. Corrections	/MR/		OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
(EB 75, Annex 7, B.2.2; VVS; §§ 257 - 259) *Indicate whether any corrections to project information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report.* *In cases where the correction(s) and the revised CPA-DD are approved prior to the submission of this monitoring report for request for issuance, provide the approval date and reference number. Otherwise, provide the version number and the completion date of the revised CPA-DD.* *Please check and report that the 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.*	/CPA-DD/ /PoA-DD/	☒ During the verification of the current MP no need for corrections has been identified. ☐ The following corrections have been applied: 1 Issue: *Detailed description and justification each correction:* Refer to Annex 3 attached for the assessment of the corrections.		
B.2.4. Permanent changes from the registered monitoring plan or applied methodology (PCfrMP; PCfMM) ***(EB 75, Annex 7, B.2.3; VVS; §§ 262 - 268)*** *Indicate whether any permanent changes from the registered monitoring plan or applied methodologies have been approved during this monitoring period or submitted with this monitoring report.* *Assure that modifications or additions of technologies/measures respect to the CPA-DD were already included in the originally registered PoA-DD.*	/MR/ /PoA-DD/ /CPA-DD/	☒ No PCfrMP or PCfMM.have been submitted to the UNFCCC prior to the current monitoring period ☐ The following PCfrMP or PCfMM have been approved or are under approval by the UNFCCC 1 Title Status ☐ under approval; ☐ approved Appr.date Ref. No.	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
In cases where the change(s) and the revised CPA-DD are approved prior to the submission of this monitoring report for request for issuance, provide the approval date and reference number. Otherwise, provide the version number and the completion date of the revised CPA-DD.		2 Title Status ☐ under approval; ☐ approved Appr.date Ref.No. ☒ During the verification of the current MP no need for a PCfrMP or PCfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA ☐ An approval of the following PCfrMP or PCfMM 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 or PCfMM for which appendix 1 of the PS is applicable have been applied: 1 Issue: 2 Issue:		
B.2.5. Changes to the project design of the registered PoA (CoPD) ***(EB 75, Annex 7, B.2.4; VVS; §§ 269 - 282)*** *Indicate whether any changes to the project design of the project activity have been approved during this*	/MR/ /CPA-DD/ /PoA-DD/	☒ No CoPD has been submitted to the UNFCCC prior to the current monitoring period ☐ The following CoPD has been approved or are under approval by the UNFCCC	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
monitoring period or submitted with this monitoring report. *Assure that modifications or additions of technologies/measures respect to the CPA-DD were already included in the originally registered PoA-DD* *In cases where the change(s) and the revised CPA-DD are approved prior to the submission of this monitoring report for request for issuance, provide the approval date and reference number. Otherwise, provide the version number and the completion date of the revised CPA-DD.*		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:		

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
C. Description of monitoring system				
C.1. Monitoring Plan – CPA-DD Compliance ***(VVS, §§ 233-236)*** *Check if the monitoring plan is in accordance with the monitoring plan contained in the registered CPA-DD (or any accepted revised MP).* *Please check esp. If:* - *all parameters stated in the MP of the registered CPA-DD have been monitored and updated as applicable* - *the monitoring equipment has been controlled and calibrated as per the MP* - *the monitoring results are consistently recorded as per the approved frequency* - *QA/QC procedures have been applied in accordance with the MP*	/MR/ /CPA-DD/	By means of comparison of the MR with the registered CPA-DD (or any revisions thereof) the verification team has checked whether the MP is in compliance with the registered CPA-DD. The outcome is as follows: ☒ The MP is completely in accordance with the last registered/approved version of the CPA-DD / MP.	OK	OK
C.2. Monitoring Plan – Meth Compliance ***(VVS, §§ 229-232)*** *Check if the monitoring plan is in accordance with the applied methodology.* *In case the methodology references applicable tools it has to be ensured that the MP is also compliant with those tools.* *Also please specify if monitoring aspects have been*	/MR/ /CPA-DD/ /AMS/	By means of comparison of the MR with the applied CDM methodology and related tools the verification team has checked whether the MP is in compliance with the MP related requirements of the applied methodology. The outcome is as follows: ☒ The MP is completely in accordance with the approved methodology applied by the CDM project (last registered/approved version of the CPA-DD)	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
identified that are not specified in the methodology but may enhance the level of accuracy and completeness of the monitoring plan – this esp. applies for SSC CPAs.		☐ The MP is completely in accordance with the applied tools which the methodology references. A breakdown of the referenced tools is as follows: 1 Title (of the tool): Version: 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 (for MP) 3 Title (of the tool): Version: MP compliance: ☐ full compliance ☐ findings have been raised ☐ N/A (for MP)		
C.3. Management System ***(VVS, § 217 (a) (iii))*** *Check if the GHG data monitoring system can be*	/MR/	*Description:* The management system of the CPA is a stand-alone system. It was established by the CME and project owner to create an	~~CAR D1~~ ~~CAR D2~~	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
assessed as appropriate. *In case reference is made to a (certified) company quality management system, check if all CDM related monitoring procedures have been fully integrated in the project participant's quality management system.* *In case of a stand-alone system, check how the GHG management system has been implemented and effectiveness is ensured.*		exclusive CDM management and monitoring group. The stove information is recorded in excel based database. The competency of the operators (data recorder, and data checker) was checked by interviewing them about their understanding for data recording and found satisfactory. The stoves information generated by the team was sent to the CDM project development officer. All the members of the CDM group had been trained to obtain required knowledge and skills for CDM monitoring and operation. *Verifier's action:* The verification team has reviewed the monitoring procedure of CPA, the management guideline and training records for the establishment and operation of the CDM monitoring system. A GHG management system is in place and PP also provided the revised MR which was checked and found satisfactory. *Conclusion:* CAR D1 and CAR D2 have been raised		
C.4. Metering diagram ***(EB 75, Annex 7, Section C.; PS §196)*** *Check first if the MR includes a metering diagram showing all relevant monitoring points.* *Check further if this diagram reflects the actual situation and is in line with the registered CPA-DD and with the requirements of the applied*	/MR/ /IM02/	*Description:* n/a *Verifier's action:* n/a *Conclusion:*	N/A	N/A

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
methodology.		n/a		
C.5. Roles and Responsibilities ***(EB 75, Annex 7, Section C. ; PS §196)*** *Check if all roles and positions of each person in the GHG data management process are clearly defined and implemented as stated in the monitoring plan. Please consider the complete data trail from raw data generation to submission of the final data.* *Identify, if relevant personnel w.r.t. monitoring has been exchanged?* *If so, have appropriate training measures been carried out.* *In case of changes, assure that the implemented monitoring procedures have not been affected.*	/MR/	*Description:* MR and project monitoring manual defined the roles of each position in the GHG data management process are clearly defined and implemented. Duly qualified personnel are involved in the monitoring procedures. *Verifier's action:* This was checked from monitoring manual and the establish CDM monitoring group. Personnel involved in the monitoring were interviewed during the site assessment to confirm their knowledge in the project activity operation and monitoring the required parameters. The training records were reviewed to confirm the personnel involved were trained. *Conclusion:* All roles for each position in the GHG data management and monitoring are defined and implemented. All personnel involved in the monitoring are being trained and qualified.	OK	OK
C.6. Emergency procedures for the monitoring system ***(EB 75, Annex 7, C; PS §196)*** *Check, as appropriate, whether relevant emergency procedures for the monitoring system have been included in the MR and assess whether these procedures have been implemented, when required*	/MR/ /PS/ /IM01/	*Description:* There is no emergency procedure for the monitoring system defined in the MR for handling of missing and incorrect data. *Verifier's action:* The MR was reviewed and relevant personnel interviewed during onsite assessment.	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		Conclusion: The emergency procedure is unnecessary considering the nature of this project.		
C.7. Data archive and data protection ***(PS §56 b)*** Check whether all records of monitoring parameters are archived according to the monitoring plan. Assess further whether appropriate measures have been taken in order to avoid unintended or intended manipulation or loss of the measured data.	/MR/ /QA1/ /IM01/ /IM02/	*Description:* All records of monitoring parameters and maintenance are archived and backed up in data base and hard driver on a daily basis. The data are archived in both hard and soft copies. The copies are kept at the project location, project owner office. *Verifier's action:* Data in both hard and soft copies were verified during site visit on a random sampling basis. In order to check if there is any unintended or intended manipulation of the measured data, the verification had checked the entire M and N_M covering the monitoring period to confirm the consistency. All data will be archived for 2 years after expiry of the PoA crediting period. Relevant personnel were interviewed. *Conclusion:* The data are archived correctly with appropriate measures implemented according to the monitoring plan.	OK	OK
D. Data and parameters				
D.1. Data and Parameters fixed ex ante				

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
a) Compliance with registered CPA-DD ***(EB 75, Annex 7; D1)*** *Check whether the value applied is in compliance with the registered CPA-DD.*	/MR/ /CPA-DD/	*Description:* The data and parameters listed in Section D.1 of MR that remain constant during the crediting period are in accordance with the CPA-DD section B.5.1. *Verifier´s action:* The parameters listed in MR section D.1 are cross checked with Section B.5.1 of the registered CPA-DD. *Conclusion:* There are no inconsistencies found.	OK	OK
b) Compliance with the applied methodology ***(EB 75, Annex 7; D1)*** *Check whether the value applied is in compliance with the applied methodology or any other tool.*	/MR/ /AMS/ /CPA-DD/ /POA-DD/	*Description:* The data and parameters remain constant during this monitoring period is in accordance with the applied methodology and relevant tools. *Verifier´s action:* The data and parameters listed in the section D.1 of MR was cross checked with the applied methodology and subscribed tools. *Conclusion:* There are no inconsistencies found.	OK	OK
D.2. Data and Parameters monitored				
D.2.1. $N_{all:}$ CPA: 001		**Description: Total number stoves disseminated.**		

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
a) Measurement / Determination method ***(VVS, §§ 233, 236)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the CPA-DD and the applied methodology.*	/MR/ /AMS/ /CPA-DD/ /ER/	*Description:* The value is derived from the excel database, named "tracker platform". I.e. the installation data of stoves will be recorded as per stove on-site check which was performed by monitoring staff per android system. The hardcopy documents i.e. the delivery note will be counter-signed by household. The N_{all} will be then generated by using of filter function of tracker. The $N_{all,}$ will be monitored and reported at least every 2 years And the value will be cross-checked by stove delivery report *Verifier´s action:* The N_{all} covering this monitoring period was verified by verification team and the data from spreadsheets were checked against the stove installation form and stove delivery form. The data is taken as the input for the ER calculations meaning it is the basis for determining of the CPA emission reductions. *Conclusion:* The value of this parameter is calculated and monitored according to the registered monitoring plan. However CAR C1 has been raised.	~~CAR C1~~	OK
b) Accuracy and QA/QC Procedure ***(VVS, §§ 237-243)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most*	/MR/	*Description:* The N_{all} could be cross-evidenced by stove installation and delivery form. Random samples have been taken by verification team and no unacceptable inaccuracies have been identified. *Verifier´s action:* The data flow of N_{all} was checked by verification team.	~~CL D2~~	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
conservative assumptions theoretically possible have been made for calculating ERs. *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.*		Correspondingly hardcopy evidence, i.e. the stove installation form, stove delivery form, bank transfer note were random sampled. *Conclusion:* It is concluded that there are no inaccuracies in the calculation of this parameter. However CL D2 has been raised		
c) Correctness ***(VVS, §§ 233, 236)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /ER/	☒ Correct ☐ Not correct (initial assessment) *Description:* The N_{all} is recorded and updated once the stove installed.. During the registration and login process on tracker, the stove delivery form, the bank transfer note will be cross checked. The inaccuracy is low. *Verifier´s action:* The data flow of N_{all} was checked by verification team. Correspondingly hardcopy evidence, i.e. the stove installation , stove delivery form were random sampled. *Conclusion:* It is concluded by means of onsite inspection and document review, the data reported in the MR is correct.	OK	OK
D.2.2. POF - CPA: 001		**Description: Product Operation Fraction**		
a) Measurement / Determination method ***(VVS, §§ 233, 236)***	/MR/ /CPA-DD/	*Description:* The value is derived from the Household Energy Survey (HES) (Household Energy Survey Data Analysis) report, which is	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the CPA-DD and the applied methodology.*		performed by independent project consultant. The project development officer office will type the stove status into the tracker database once has been informed by on-site monitoring staff and android system. The POF will be monitored at least every 2 years. *Verifier´s action:* The POF in HES report covering the monitoring period has been checked by verification team On-site check and phone call interview records from monitoring staff have been random sampled and cross checked. *Conclusion:* The measurement approach of parameter data is according to the registered CPA-DD.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 237-243)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line*	/MR/ /CPA1/	*Description:* The POF could be cross evidenced by stove installation and on-site monitoring records. Random samples have been taken by verification team and no unacceptable inaccuracies have been identified. *Verifier´s action:* The POF was checked by verification team. Correspondingly hardcopy evidence, i.e. the stove installation and on-site monitoring records were random sampled. *Conclusion:* The parameter is according to the registered CPA-DD	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
with the latest EB guidance.				
c) Correctness ***(VVS, §§ 233, 236)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /CPA-DD/	☒ Correct ☐ Not correct (initial assessment) *Description:* The POF is recorded and updated once the stove installation form has been submitted via the android system. During the tracker inputting process, the stove installation and monitoring records from XaC bank technician will be cross checked. The inaccuracy is low. *Verifier´s action:* The data flow of POF was checked by verification team. Correspondingly hardcopy evidence, i.e. the stove installation and on-site monitoring records. were random sampled. *Conclusion:* The parameter information is according to registered CPA-DD.	OK	OK
D.2.3. $C_{y,new,CEP-i}$ CPA: 001		**Description: $C_{y,new,CEP-i}$ represents the quantity of coal used in the project scenario for CEP-I installation, weighted average if multiple clusters of CEP, for target groups in Ger Area homes.**		
a) Measurement / Determination method ***(VVS, §§ 233, 236)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation*	/MR/ /CPA-DD/ /AMS/ /HES/	*Description:* The quantity of coal used is determined for the following 6 frames for this monitoring period: • Frame 1: Stove in house dwelling type, located in Songinokhairkhan district • Frame 2: Stove in house dwelling type, located in	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
level zero (DAL0)). *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the CPA-DD and the applied methodology.*		Bayangol district • Frame 3: Stove in house dwelling type, located in other district • Frame 4: Stove in ger dwelling type, located in Songinokhairkhan district • Frame 5: Stove in ger dwelling type, located in Bayangol district • Frame 6: Stove in ger dwelling type, located in other district The value is derived from a 3rd party survey report. i.e. Household Energy Survey (HES) (Household Energy Survey Data Analysis) report. The survey has been carried out by using of "simple random sampling" and taking dwelling type and the level of precision of 90/10 into account. For the conservative purpose, 50% of oversampling will be applied considering possible low response as answer bias. *Verifier´s action:* The sampling plan has been cross checked by verification team according to EB sampling guideline and applied methodology. The coal consumption has been also verified by means of on-site visit and interview (sample based). The researcher from this 3rd party has been interviewed, w.r.t. the design and implementation of sampling plan, the independence and competence of survey implementer *Conclusion:*		

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		The parameter is in accordance with the registered monitoring plan of the CPA-DD and the applied methodology.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 237-243)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.*	/MR/	*Description:* The value is derived from a 3rd party survey report, which is carried out by using of "simple random sampling" and taking dwelling type and the level of precision of 90/10 into account. *Verifier´s action:* The sampling plan has been cross checked by verification team according to EB sampling guideline and applied methodology. The coal consumption has been also verified by means of on-site visit and interview (sample based). The senior researcher from this 3rd party has been interviewed, w.r.t. the design and implementation of sampling plan, the independence and competence of survey implementer. *Conclusion:* There are no inconsistencies in the data reported for the parameter. However refer to CL D1 raised	~~CL D1~~	OK
c) Correctness ***(VVS, §§ 233, 236)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.*	/MR/ /CPA1/	☒ Correct ☐ Not correct (initial assessment) *Description:* The sampling plan has been cross checked by verification team according to EB sampling guideline and applied methodology. The $\mathbf{C_{y,new,CEP-i}}$ is calculated as :	OK	OK

Checklist Item (incl. guidance for the verification team)		Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given. *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*			1. House-Song. 3.54 2. House-Bayan. 3.35 3. House-Other 3.43 4. Ger-Song. 3.64 5. Ger-Bayan. 2.76 6. Ger-Other 3.40*Verifier´s action:* The sampling plan has been cross checked by verification team according to EB sampling guideline and applied methodology. The coal consumption has been also verified by means of on-site visit and interview (sample based). The senior researcher from this 3rd party has been interviewed, w.r.t. the design and implementation of sampling plan, the independence and competence of survey implementer. The calculation of **$C_{y,new,CEP-i}$** was reviewed by verification team. *Conclusion:* It is concluded by means of onsite inspection and document review the data reported in the MR is correctly.		
D.2.4. $C_{y,old,CEP-i}$	**CPA: 001**		**Description: $C_{y,old,CEP-i}$ represents the quantity of coal in the baseline scenario in tonnes during year y for CEP-installation cluster (installation cluster (i) may represent baseline for single or multiple CEP installations, thus addressing cross-effects).**		

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
a) Measurement / Determination method ***(VVS, §§ 233, 236)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the CPA-DD and the applied methodology.*	/MR/ /CPA-DD/ /AMS/ /HES/	*Description:* The quantity of coal used is determined for th6 frames for this monitoring period: • Frame 1: Stove in house dwelling type, located in Songinokhairkhan district • Frame 2: Stove in house dwelling type, located in Bayangol district • Frame 3: Stove in house dwelling type, located in other district • Frame 4: Stove in ger dwelling type, located in Songinokhairkhan district • Frame 5: Stove in ger dwelling type, located in Bayangol district • Frame 6: Stove in ger dwelling type, located in other district The value is derived from a 3rd party survey report. i.e. Household Energy Survey (HES) (Household Energy Survey Data Analysis) report. The survey has been carried out by using of “simple random sampling” and taking dwelling type and the level of precision of 90/10 into account. For the conservative purpose, 50% of oversampling will be applied considering possible low response as answer bias. *Verifier´s action:* The sampling plan has been cross checked by verification team	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		according to EB sampling guideline and applied methodology. The coal consumption has been also verified by means of on-site visit and interview (sample based). The researcher from this 3rd party has been interviewed, w.r.t. the design and implementation of sampling plan, the independence and competence of survey implementer *Conclusion:* The parameter is in accordance with the registered monitoring plan of the CPA-DD and the applied methodology.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 237-243)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.*	/MR/ /	*Description:* The value is derived from a 3rd party survey report, which is carried out by using of "simple random sampling" and taking dwelling type and the level of precision of 90/10 into account. *Verifier´s action:* The sampling plan has been cross checked by verification team according to EB sampling guideline and applied methodology. The coal consumption has been also verified by means of on-site visit and interview (sample based). The senior researcher from this 3rd party has been interviewed, w.r.t. the design and implementation of sampling plan, the independence and competence of survey implementer. *Conclusion:* There are no inconsistencies in the data reported for the parameter.	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
c) Correctness ***(VVS, §§ 233, 236)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /CPA1/	☒ Correct ☐ Not correct (initial assessment) *Description:* The sampling plan has been cross checked by verification team according to EB sampling guideline and applied methodology. The $\mathbf{C_{y,old,CEP-i}}$ is calculated as : House-Song 5.67 House-Bayan 4.23 House-other 5.31 Ger-song 5.23 Ger-Bayan 3.79 Ger other 4.87 *Verifier´s action:* The sampling plan has been cross checked by verification team according to EB sampling guideline and applied methodology. The coal consumption has been also verified by means of on-site visit and interview (sample based). The senior researcher from this 3rd party has been interviewed, w.r.t. the design and implementation of sampling plan, the independence and competence of survey implementer. The calculation of $\mathbf{C_{y,old,CEP-i}}$ was reviewed by verification team. *Conclusion:* It is concluded by means of onsite inspection and document	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		review the data reported in the MR is correctly.		
D.2.5. $T_{y,s}$ household stoves and/or insulation **CPA: 001**		**Mean temperature in Celsius for year *y* and season *s* (Fall, Winter, Spring, Summer) for target groups in Ger Area homes**		
a) Measurement / Determination method ***(VVS, §§ 233, 236)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the CPA-DD and the applied methodology.*	/MR/ /CPA-DD/ /AMS/	*Description:* The value is derived from (US) National Climatic Data Centre Climatic Service Branch of the National Oceanic and Atmospheric Administration (NOAA). Values applied for season represent average of daily temperature measurement recorded by NOAA for every day during season, following seasonal definitions below: Autumn – August 2013, September 2013, October 2013 Winter – November 2013, December 2013, January 2014 Spring – February 2014, March 2014, April 2014 *Verifier´s action:* The resource has been cross checked by verification team according to registered PoA-DD and CPA-DD *Conclusion:* The parameter is in accordance with the registered monitoring plan of the CPA-DD and the applied methodology.	OK	OK
b) Accuracy and QA/QC Procedure	/MR/ /HES/	*Description:* The value is derived from a 3rd party report, which is carried out	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
(VVS, §§ 237-243) *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.*		by u (US) National Climatic Data Centre Climatic Service Branch of the National Oceanic and Atmospheric Administration (NOAA) *Verifier´s action:* The resource has been cross checked by verification team according to registered PoA-DD and CPA-DD *Conclusion:* There are no inconsistencies in the data reported for the parameter.		
c) Correctness ***(VVS, §§ 233, 236)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /CPA1/ /EI3/ /EI6/	☒ Correct ☐ Not correct (initial assessment) *Description:* The source has been cross checked by verification team according to registered PoA-DD and CPA-DD Value applied: T1,Autumn 7.5 °C T1,Winter -18.2 °C T1,Spring -7.2 °C *Verifier´s action:* The resource has been cross checked by verification team according to registered PoA-DD and CPA-DD *Conclusion:*	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		It is concluded by means of document review the data reported in the MR is correctly.		
D.2.6. $WS_{y,s}$ household stoves and/or insulation **CPA: 001**		**Mean wind speed in knots for year y and season s (Fall, Winter, Spring, Summer) for target groups in Ulaanbaatar**		
a) Measurement / Determination method ***(VVS, §§ 233, 236)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the CPA-DD and the applied methodology.*	/MR/ /CPA-DD/ /AMS/	*Description:* The value is derived from (US) National Climatic Data Centre Climatic Service Branch of the National Oceanic and Atmospheric Administration (NOAA). Values applied for season represent average of daily daily wind speed recorded by NOAA for every day during season, following seasonal definitions below: Autumn – August 2013, September 2013, October 2013 Winter – November 2013, December 2013, January 2014 Spring – February 2014, March 2014, April 2014 *Verifier´s action:* The resource has been cross checked by verification team according to registered PoA-DD and CPA-DD *Conclusion:* The parameter is in accordance with the registered monitoring plan of the CPA-DD and the applied methodology.	OK	OK
b) Accuracy and QA/QC Procedure	/MR/ /HES/	*Description:* The value is derived from a 3rd party report, which is carried out	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
(VVS, §§ 237-243) *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.*		by u (US) National Climatic Data Centre Climatic Service Branch of the National Oceanic and Atmospheric Administration (NOAA) *Verifier´s action:* The resource has been cross checked by verification team according to registered PoA-DD and CPA-DD *Conclusion:* There are no inconsistencies in the data reported for the parameter.		
c) Correctness ***(VVS, §§ 233, 236)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /CPA1/ /EI3/ /EI6/	☒ Correct ☐ Not correct (initial assessment) *Description:* The source has been cross checked by verification team according to registered PoA-DD and CPA-DD Value applied: WS1,Autumn 5.5 knots WS1,Winter 3.0 knots WS1,Spring 5.0 knots *Verifier´s action:* The resource has been cross checked by verification team according to registered PoA-DD and CPA-DD *Conclusion:*	OK	OK

Checklist Item (incl. guidance for the verification team)		Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
			It is concluded by means of document review the data reported in the MR is correctly.		
D.2.7. $DW_{y,type,\ household\ stoves\ and/or\ insulation}$	**CPA: 001**		**Number of dwellings that are houses for target groups in Ger Area homes**		
a) Measurement / Determination method ***(VVS, §§ 233, 236)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the CPA-DD and the applied methodology.*		/MR/ /CPA-DD/ /AMS/	*Description:* The value is derived from tracker platform and 3rd party survey report.(Household Energy Survey (HES) report) 1 or 0 stands for each household that used product and reported coal consumption in project scenario to calculate baseline coal consumption. *Verifier´s action:* The resource has been cross checked by verification team according to HES report *Conclusion:* The parameter is in accordance with the registered monitoring plan of the CPA-DD and the applied methodology.	OK	OK
b) Accuracy and QA/QC Procedure ***(VVS, §§ 237-243)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies*		/MR/ /HES/	*Description:* The value is derived from tracker platform and 3rd party survey report.(Household Energy Survey (HES) report) *Verifier´s action:* The resource has been cross checked by verification team	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs. *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.*		according to HES report *Conclusion:* There are no inconsistencies in the data reported for the parameter.		
c) Correctness ***(VVS, §§ 233, 236)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /CPA1/ /EI3/ /EI6/	☒ Correct ☐ Not correct (initial assessment) *Description:* The source has been cross checked by verification team according to registered HES report Value applied: 1 or 0 stands for each household that used product and reported coal consumption in project scenario to calculate baseline coal consumption. *Verifier´s action:* The resource has been cross checked by verification team according to 3rd party report *Conclusion:* It is concluded by means of document review the data reported in the MR is correctly.	OK	OK
D.2.8. η_{new} **CPA: 001**		**Efficiency of the new efficient CEP**		
a) Measurement / Determination method	/MR/	*Description:*	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
(VVS, §§ 233, 236) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the CPA-DD and the applied methodology.*	/CPA-DD/ /AMS/	The efficiency of the new stove was tested by the Stove Emissions and Efficiency Testing (SEET) Laboratory in Ulaanbaatar Mongolia., which was developed with support from the Asian Development Bank and currently under management of the national Mongolian University of Science and Technology (MUST). Testing followed the protocol: "UJ SeTAR Centre Standard Operating Procedure: The Heterogenous Testing Procedure for Thermal Performance and Trace Gas Emissions." *Verifier´s action:* The resource has been cross checked by verification team according to HES report *Conclusion:* The parameter is in accordance with the registered monitoring plan of the CPA-DD and the applied methodology.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 237-243)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line*	/MR/ /HES/	*Description:* The value is derived from 3rd party report, i.e. the Stove Emissions and Efficiency Testing (SEET) Laboratory in Ulaanbaatar Mongolia. *Verifier´s action:* The resource has been cross checked by verification team according to SEET report *Conclusion:* There are no inconsistencies in the data reported for the parameter.	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
with the latest EB guidance.				
c) Correctness ***(VVS, §§ 233, 236)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /CPA1/ /EI3/ /EI6/	☒ Correct ☐ Not correct (initial assessment) *Description:* The source has been cross checked by verification team according to SEET report Value applied for the different Stove Types: Royal Single/Mini Dul 74.3% Royal Double/Golomt 75.8% Silver Turbo/Khas 77.0% Silver Mini/ Ulzii 76.2% *Verifier´s action:* The resource has been cross checked by verification team according to 3rd party report *Conclusion:* It is concluded by means of document review the data reported in the MR is correctly.	OK	OK
D.3. Sampling				

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
a) Implementation of sampling plan ***(EB75 Annex 7; D3, EB74, Annex 6)*** *Check whether the PP has applied a sampling approach to determine the monitored values (as per section D.2 above).* *If this is the case, please provide an assessment whether the PPs have correctly and sufficiently described the implemented sampling plan including:* *a) Description of the implemented sampling design* *b) Collected data* *c) Analysis of collected data* *d) Demonstration on whether the required confidence/precision has been met (when no specific guidance in the applied methodology, 90/10 confidence/precision for SSC and 95/10 confidence/precision for LSC) and samples were representative of the population.* *e) Confirmation on the application of samplings separately and independently for each of the CPAs or a sampling covering a group of CPAs is undertaken applying 95/10 confidence/precision*	/MR/	☐ No sampling approach has been used by the PP to determine the monitored parameters **OR**. ☒ A sampling approach has been taken for the following monitored parameter: ***Parameter: POF, $C_{y,new,CEP-I}$, $C_{y,old,CEP-i}$*** *Description:* Simple random sampling method (by dwelling type and location) has been applied to determine the monitored parameters. A 3rd party has been employed for the design and implementation of the sampling. According to applied methodology and relevant requirements for sampling ”General Guidelines for sampling and survey for small-scale CDM project activities”, since the project proponent decided to inspect annually, therefore sample size has been determined by choosing a 90/10 precision (90% confidence interval and 10% margin of error). According to baseline survey, since the coal consumption varies with dwelling type and district, six sampling frames have been determined for sampling: namely: Frame 1: Stove in house dwelling type, located in Songinokhairkhan district Frame 2: Stove in house dwelling type, located in Bayangol district Frame 3: Stove in house dwelling type, located in other district Frame 4: Stove in ger dwelling type, located in Songinokhairkhan district Frame 5: Stove in ger dwelling type, located in Bayangol district	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
b) Sampling during verification w.r.t. the monitoring parameters ***(EB74, Annex 6, §24-29)*** *In case the VT has applied a sampling approach in the course of the verification the approach shall be described for each parameter.*	/MR/ /ER/	☐ No sampling approach has been used by the VT to verify the monitored parameters **OR**. ☒ A sampling approach has been applied by the VT for the following monitored parameter: *Description:* Para. 60 (a) in "General Guidelines for sampling and survey for small-scale CDM project activities", has been followed when design the sampling of this verification. Since the CPA included in the PoA implements technologies/measures with high degree of standardisation/para56/ and each biogas plant in CPA is smaller than 1% of small scale CDM thresholds/para57/, the verification team decided to draw samples from the project samples selected by PP. Option b) as defined in para.51 has been chosen. i.e. "the DOE should sample [25%] of project samples units, provided that there are more than 100 project sample units. Otherwise, sample a minimum of [25] of them." 60 samples for house and 60samples for gers have been randomly selected	N/A	N/A

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
c) Sampling during verification w.r.t. on-site visits ***(VVS, §298)*** *Explained here the sampling approach taken by the VT in order to determine the amount of CPAs that shall be visited, if applicable.* *For CPAs complying with different versions of the PoA, a statistically sound sample of CPAs from each version of the PoA have to be verified.*	/SP/	☒ No sampling approach has been used by the VT to determine the number of CPAs to be visited **OR**. ☐ A sampling approach has been applied by the VT in order to determine the number of CPAs to be visited:	OK	OK
E. Calculation of Emission reductions				
E.1. Traceability ***(VVS, §§ 212, 214)*** *Assess if the calculation is fully traceable. In case of complex calculations an Excel calculation spread-sheet shall be used. All applied formulae must be visible.*	/MR/ /AMS/ /ER/	*Description:* The calculation is provided in forms of excel, and the applied formulae is visible *Verifier´s action:* The calculation is reproduced by verification team *Conclusion:* The calculation is accurate and traceable	OK	OK
E.2. Parameter consistency ***(VVS, § 214)*** *Assess whether all internal and external parameters and data used for calculation are applied consistently in the monitoring report and the calculation spreadsheet.*	/MR/ /ER/ /CPA-DD/	*Description:* The monitored parameters in the MR are consistent with the applied methodology and registered CPA-DD. *Verifier´s action:* The verification team has reviewed the ER spreadsheet, MR, methodology and registered CPA-DD	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
Consider only the correct data exchange between the monitoring report and the calculation spreadsheet (if any). Further ensure the consistency of notations for all parameters in the CPA-DD, MR and calculation spreadsheet.		*Conclusion:* The Parameters are consistent		
E.3. Correctness of calculation ***(VVS, §§ 244-245)*** *Check if the applied formulae and methods for calculating baseline emissions, project emissions and leakage are in accordance with the monitoring plan and / or the approved methodology.* *Assess whether the provided calculations are complete and reflect all requirements of the monitoring plan.* *Check especially that no standard or old values have been used for calculation where calculations based on up-to-date data is required.* *When sampling is undertaken, unless differently specified in the methodology applied, the sample mean value shall be used for the ER calculation instead of the lower or upper bounds of the confidence interval.*	/MR/ /ER/ /CPD-DD/ /AMS/	*Description:* The equations indicated in the MR are in accordance to the applied methodology and registered CPA-DD. The data source, equations and parameters representation are listed in the ER spreadsheet. *Verifier´s action:* The applied equations stated in MR were cross-checked with the registered CPA-DD and applied methodology. The input values applied in the ER spreadsheet were checked and reviewed. *Conclusion:* The calculation is in line with registered CPA-DD and applied methodology	OK	OK
E.4. Emission reductions table ***(EB 75, Annex 7, E.4)*** *Check if the MR includes a summary table of the*	/MR/ /ER/	☒ The MR includes in section E.4 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	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
emission reductions calculation specifying separately - *Total baseline emissions* - *Total project emissions:* - *Total leakage* - *Total emission reductions.* *Assess whether the values are correct or need to be revised as a consequence of issues identified above.*		reductions separately. ☒ The values as specified in the ER summary table are correct; no issues have been identified during the verification which required changes in the ER calculation. ☐ During the verification issues with impact on the ER calculation have been identified. Thus subject to the closure of above listed findings the summary table in E.4 needs to be revised.		
E.5. Comparison with ex-ante determined emission reductions ***(EB 75, Annex 7, E.5; E.6)*** *Check if the MR includes a comparison of actual values of the monitoring period with the estimations in the registered CPA-DD.* *Check further whether in case of an increase an appropriate explanation is included in the MR.* *Assess in case of a significant increase whether this is due to technical or organisational changes within or outside the control of the PP and – if this is case – whether the PRC have been considered appropriately.*	/MR/ /ER/ /CPA-DD/	*Description:* The monitoring report provided a comparison of the estimated and actual ER. *Verifier´s action:* Review of Section E.6 of MR. The ex-ante data is compared with the registered CPA-DD. The ex-post data is cross-checked with the ER spreadsheet. *Conclusion:* The comparison of ex-ante ER and actual ER is included in the MR.	OK	OK
E.6. ER during the 1st commitment period and the period from 1 January 2013 onwards	/MR/ /ER/	☒ The MR in section E.7 includes a summary table of the ER breakdown *a) ER up to 2012-12-31 and*	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
(EB 75, Annex 7, E.7) *Check if the MR includes in chapter E.7 a breakdown of the actual ER into* *a) ER up to 2012-12-31 and* *b) ER from 2013-01-01 onwards* *The ERs for each period should be determined as per the actual generation. In cases where this is not possible or a cap has been applied a proportional (time related) approach should be chosen.*		*b) ER from 2013-01-01 onwards* ☒ The breakdown of the ERs during the first commitment period and from 2013-01-01 onwards is as follows: ☐ The ER have completely been generated during the first commitment period ☒ The ERs have completely been generated from 2013-01-01 onwards, ☐ The ERs have partly been generated during the first commitment period and partly from 2013-01-01 onwards. ☒ The breakdown of the ERs is correct, considering the applicable guidance. In this context no additional findings have been identified.		

ANNEX 3: STATEMENTS OF COMPETENCE OF INVOLVED PERSONNEL

TÜV NORD Certification

Statement of Competence

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

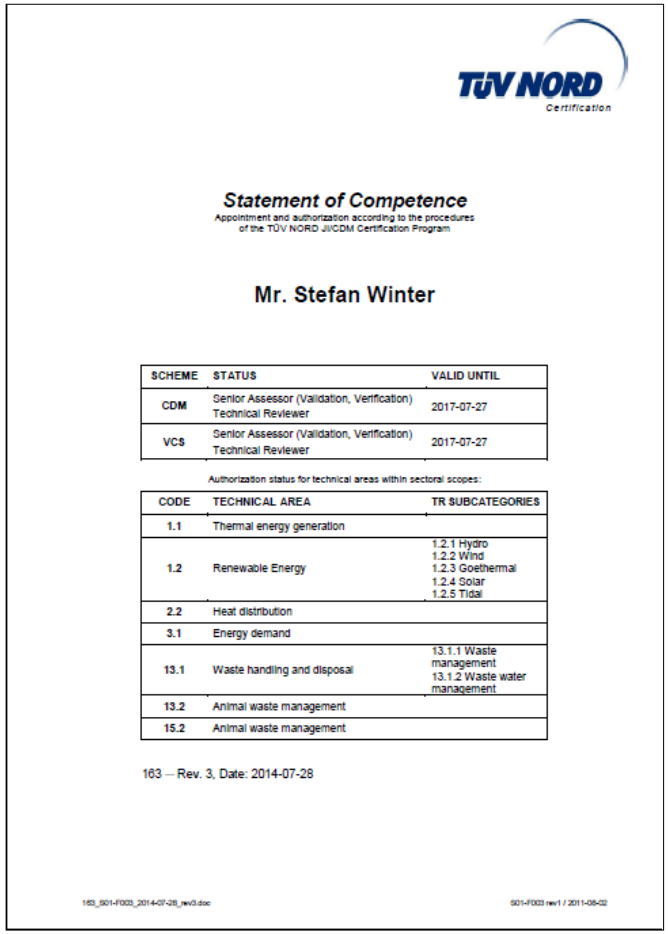
Mr. Yongjun Li

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2016-06-28
VCS / ISO 14064-2	Senior Assessor (Validation, Verification) Technical Reviewer	2016-06-28

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.2	Renewable Energies	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Tidal
13.1	Waste Handling and Disposal	

039 – Rev. 2, Date: 2014-09-22



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	2017-07-27
VCS	Senior Assessor (Validation, Verification) Technical Reviewer	2017-07-27

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.1	Thermal energy generation	
1.2	Renewable Energy	1.2.1 Hydro 1.2.2 Wind 1.2.3 Goethermal 1.2.4 Solar 1.2.5 Tidal
2.2	Heat distribution	
3.1	Energy demand	
13.1	Waste handling and disposal	13.1.1 Waste management 13.1.2 Waste water management
13.2	Animal waste management	
15.2	Animal waste management	

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