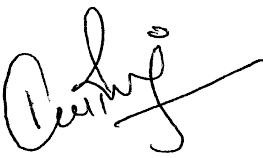




**Validation report form for
CDM programme of activities
(Version 02.0)**

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

BASIC INFORMATION

Title of the programme of activities (PoA)	Man and Man Enterprise Improved Cooking Stoves CDM Programme in Ghana supported by Republic of Korea
Version number of the validation report	04
Completion date of the validation report	12/09/2018
Version number of PoA-DD to which this validation report applies	1.7
Date when PoA-DD was uploaded for global stakeholder consultation	30/06/2017
Coordinating/managing entity (CME)	AERA GROUP S.A.S.
Host Parties	Ghana
Applied methodologies and standardized baselines	AMS-II.G. "Energy efficiency measures in thermal applications of non-renewable biomass" Version 08.0
Mandatory sectoral scopes linked to the applied methodologies	Sectoral Scope 3 – Energy Demand
Conditional sectoral scopes linked to the applied methodologies, if applicable	NA
Name and UNFCCC reference number of the DOE	Earthood Services Private Limited. UNFCCC Ref.: E-0066.
Name, position and signature of the approver of the validation report	 Dr. Kaviraj Singh Managing Director

SECTION A.Executive summary

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Summary of the PoA:

The proposed PoA involves dissemination of Improved Cooking Stoves (ICSs) to end-users in Ghana in replacement of traditional cooking stoves using non-renewable biomass (wood fuel). The purpose of the PoA and its Component Project Activities (CPAs) is to mitigate climate change and contribute to sustainable development in Ghana.

CPA implementers sell affordable Improved Cooking Stoves (ICSs) to end-users in Ghana in replacement of traditional cooking stoves using non-renewable wood fuel. Since ICSs are more efficient than traditional cooking stoves, users save non-renewable biomass (wood fuel) during cooking seasons leading to greenhouse gas (GHG) emission reductions and mitigating climate change.

Since there are neither laws nor regulations in Ghana that require the distribution and use of ICS whatsoever, the PoA is a voluntary action.

In baseline scenario, woody biomass (mostly non-renewable) is burnt in traditional cook stoves for cooking based on traditional kilns to generate charcoal. According to the information gathered by Ghana's National Energy Commission (2017), biomass accounts for 39% of final energy consumption in the country, being a predominant cooking fuel in households and small industries. Ghanaians depend on solid fuels for domestic and commercial use, which has been a dominant pattern over the years. 73% of households use wood fuels for cooking.

In project scenario, the same amount of thermal energy is generated from less amount of woody biomass.

The coordinating and managing entity (CME) for the proposed PoA is AERA GROUP S.A.S. It coordinates the efforts of potential CPA implementers to distribute ICSs throughout Ghana.

Scope of validation:

AERA Group S.A.S. has contracted Earthood Services Private Limited (Earthood) to conduct the validation of "Man and Man Enterprise Improved Cooking Stoves CDM Programme in Ghana supported by Republic of Korea".

The scope of validation is to assess the claims and assumptions made in the project design document (PoA-DD) against the UNFCCC criteria, including but not limited to, CDM PS, CDM VVS, applied methodology and other relevant rules and requirements established for CDM Programme of Activities.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarification and/or correction actions request may have provided inputs for improvement of the project design.

Validation Process

The validation process is undertaken by validation team that involves the following:

- the desk review of documents and evidences submitted by the project participant in context of the reference CDM rules and guidelines issued by CDM EB,
- undertaking site visit, interview or interactions with the representative of the project participant,
- reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate and
- preparing a draft validation report complying with the CDM requirements

An independent Technical Review team reviews the validation report prepared by validation team. The final validation report that is accepted by Technical Reviewer is then approved on behalf of Earthood Services Private Limited and processed further as per CDM procedures.

Major inclusion milestones are stated below:

PoA-DD publication (GSC):	30/06/2017-30/07/2017
Desk review:	25/07/2017-02/08/2017
On-site assessment:	05/08/2017
Reporting of findings:	05/08/2017-18/07/2018
Draft Validation Report	29/07/2018
Final Validation Report	12/09/2018

Conclusion:

Earthood Services Private Limited (hereinafter referred as Earthood) has performed the validation of the programme of activity “Man and Man Enterprise Improved Cooking Stoves CDM Programme in Ghana supported by Republic of Korea” The validation was performed on the basis of rules and requirements defined by UNFCCC for the CDM PoA.

The review of the PoA-DD/1/, supporting documentation and subsequent follow-up actions (onsite visit and interviews) have provided Earthood with sufficient evidence to determine the fulfilment of stated criteria.

It is Earthood’s opinion that the PoA “Man and Man Enterprise Improved Cooking Stoves CDM Programme in Ghana supported by Republic of Korea” as described in the PoA-DD, Version 1.7 dated 27/07/2018/1/ meets all relevant UNFCCC requirements for the CDM and correctly applies the baseline and monitoring methodologies AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass” Version 08.0/21/.

Therefore, the project is being recommended to CDM EB for request for registration or validation report is being issued.

SECTION B.Validation team, technical reviewer and approver**B.1.Validation team members**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	IR	Mandal	Amit Ranjan	Central Office	Y	Y	Y	Y
2.	Validator	IR	Mandal	Amit Ranjan	Central Office	Y	Y	Y	Y
3.	Methodology Expert (AMS-II.G.)	IR	Mandal	Amit Ranjan	Central Office	Y	Y	Y	Y
4.	Technical Expert (3.1)	IR	Mandal	Amit Ranjan	Central Office	Y	Y	Y	Y
5.	Local Expert	EI	Wealth	Moses Dada	Central Office	Y	Y	Y	Y

B.2.Technical reviewer and approver of the validation report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Garg	Shreya	Central Office
2.	Technical Expert to TR (3.1)	IR	Garg	Shreya	Central Office
3.	Approver	IR	Singh	Kaviraj	Central Office

SECTION C.Means of validation**C.1.Desk/document review**

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The validation is performed primarily as a document review of the initially available PoA-DD version 01 dated 23/06/2017/1/ and the subsequent versions (including the final version, i.e. version 1.7), Generic CPA-DD

version 01 dated 23/06/2017/2/ and the subsequent versions (including the final version, i.e. version 1.7) against the applicable requirements stated in CDM PS, CDM VVS, selected baseline and monitoring methodology, guidance and CDM decisions approved/provided by CDM EB.

The validation team cross checks information provided in the PoA-DD/01/ and generic CPA-DD/02/ with their quoted sources and information from sources other than those used, if available. The validation team applies standard auditing skills while examining the information and supporting evidences and is supported by sectoral/technical/local/financial expertise (for specific skills and knowledge) and undertakes independent background investigations, if necessary.

A complete list of supporting documents/evidences reviewed is included in Appendix 3.

C.2.On-site inspection

Duration of on-site inspection: 05/08/2017 to 05/08/2017				
No.	Activity performed on-site	Site location	Date	Team member
1.	Assessment of: <ul style="list-style-type: none"> choice and applicability of baseline methodology project boundary and emission sources included in the project boundary parameters fixed ex-ante and baseline emission, project emission and leakage monitoring plan start date of the PoA, crediting period Physical Verification of the ICS 	Sunyani	05/08/2017	Amit Ranjan Mandal, Moses Dada Wealth
2.	Eligibility Criteria for Inclusion of a <ul style="list-style-type: none"> CPA in the PoA Competence of CME to evaluate the inclusion of a CPA Technology/measure employed in specific CPA; 	Sunyani	05/08/2017	Amit Ranjan Mandal, Moses Dada Wealth
3.	Interview with stakeholders	Sunyani	05/08/2017	Amit Ranjan Mandal, Moses Dada Wealth
4.	<ul style="list-style-type: none"> Implementation, Operation and Management of specific CPA; Training of personnel Local laws and regulations in host country applicable to the project activity. 	Sunyani	05/08/2017	Amit Ranjan Mandal, Moses Dada Wealth

C.3.Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Nyagbem	Francis	Regional Director (EPA-Sunyani)	05/08/2017	Approval process of project activity from Host Party and approval of participation of Project Participant(s).	Amit Ranjan Mandal, Moses Dada Wealth
2.	Nyantakyi	Jackson. A	Principal programme officer (EPA-Sunyani)	05/08/2017	Rules and regulation in host country	Amit Ranjan Mandal, Moses Dada Wealth
3.	Deniel	Ameli. G	Regional Accountant (EPA-Sunyani)	05/08/2017	Rules and regulation in host country	Amit Ranjan Mandal, Moses Dada Wealth
4.	Bediar	Asare	EPA-Sunyani	05/08/2017	Project type, details	Amit Ranjan Mandal, Moses Dada Wealth
5.	Agyei	Michael Yaw	Man and Man enterprise	05/08/2017	Project details, testing of ICS, ICS cost, Monitoring and Distribution process etc.	Amit Ranjan Mandal, Moses Dada Wealth
6.	Adu	Ernest	Man and	05/08/2017	Project details,	Amit Ranjan Mandal,

		Nyanteh	Man enterprises		manufacturing process of ICS, Monitoring and Distribution process etc.	Moses Dada Wealth
7.	Dunod	Alexandre	AERA S.A.S.	05/08/2017	PoA-DD, Emission reduction calculation, Project details, Monitoring process etc.	Amit Ranjan Mandal, Moses Dada Wealth

C.4.Sampling approach

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CME's sampling approach:

According to AMS-II.G., "it is assumed that in the absence of the project activity, the baseline scenario would be the projected use of fossil fuels to meet similar thermal energy needs as those provided by the project devices."

As per PoA description in section A.1 of the PoA-DD, the project devices are ICSs using non-renewable biomass (wood fuel) for all CPAs.

The sampling method is provided by the CME for the CPA implementer is to be applied before the CPA implementation. The sampling for each parameter is to determine via survey a statistically significant value for the emission reduction calculations. The sampling details are transparently provided in the PoA-DD. The details of sampling is discussed as follows:

Sampling Design:

Objectives and reliability requirements

The sampling objective is to provide unbiased and reliable estimates of these parameter values during the crediting period with the confidence/precision level required by AMS-II.G. This would be achieved through a representative sample of distributed ICS, as compared to the study of the total population of cooking stoves distributed.

Target population and sampling frame

The *target population* is the totality of ICSs (sampling unit) distributed.

For the monitoring of parameter $\eta_{new,i,j}$ (and $SC_{new,i,j}$ $B_{y=1,new,i,j,survey}$, $B_{new,KPT,i,j}$, $\mu_{y,i,j}$, $N_{y,i,j}$ $I(p_{op_stoves,y})$ respectively), which is sensitive to the aging of stoves, all cooking stoves sold are grouped in batches (age classes) and efficiency parameter values are estimated for each batch as a separate population.

The *sampling frame* consists the data on ICS sales entered and/or available in the CPA's electronic database.

The electronic database records information for each sale at least on the following:

- Sales date (age class)/date of replacement of the ICS
- Project stove serial number(s)
- Type and size of ICS(s)
- Customer (and reseller as applicable) name
- Contact details of customer (and reseller as applicable)
- User type (e.g. household)

Sampling Method

Due to the homogeneity requirement for grouping CPAs under one sampling plan, the sampling method adopted will be simple random sampling for all parameters monitored through sampling at all times. This is found in line with the requirement of the methodology and Sampling and surveys for CDM project activities and programmes of activities (Standard), version 7.0.

Sample Size

A sample size will be calculated in order to meet reliability requirements in line with the applied methodology.

As discussed in the PoA-DD, the project proponent has the possibility of:

- sampling of a group of CPAs under one sampling plan,
- sampling of each CPA individually.

Parameter values will be estimated by sampling in accordance with the requirements in AMS-II.G. separately and independently for each of the CPAs included in the PoA except when a single sampling plan covering a group of CPAs is undertaken.

A pre-condition for grouping CPAs is that they consist of the same end-users category (e.g. households), which own the same type, model and size of ICS (Jiko-type Holy cook size M), i.e. the same technical specifications, located in the same boundaries.

This allows to estimate parameters $N_{y,i,j}$ and $\mu_{y,i,j}$ as well as $\eta_{new,i,j}/SC_{new,i,j} / B_{y=1,new,i,j,survey}/B_{new,KPT,i,j}$, respectively without bias.

In case the project proponent(s) and/or the CME(s) decide jointly to choose grouped sampling, a single sampling plan of the group of CPAs needs to be submitted.

The sample size for estimating the proportional parameters $p_{op_stoves,y}$ and $\mu_{y,i,j}$ (or their reverse) will be calculated using the formula provided in the "Guideline: Sampling and surveys for CDM project activities and PoAs" para 12 (equation -1):

$$n_p \geq \frac{t_{\alpha/2}^2 N_y \times p(1-p)}{(N_y - 1) \cdot 0.1^2 \times p^2 + t_{\alpha/2}^2 p(1-p)}$$

Where:

$t_{\alpha/2}$ Student's *t* Critical Values equal to 1.96 in the case when 95% confidence interval and a 10% margin of error are required and value; equal to 1.645 in the case when 90% confidence interval and a 10% margin of error are required

N_y Size of the population of stoves considered for the monitoring session

p Expected proportion

The monitoring of $p_{op_stoves,y}$ and $\mu_{y,i,j}$ is based on the same sample, which is the sample with the larger sample size of the two.

If it is not possible to meet the 95/10 confidence/precision, then:

- for $\mu_{y,i,j}$, the higher bound of the 95%/10% confidence/precision requirements shall be used as the correct value.
- for $p_{op_stoves,y}$, the lower bound of 95%/10% confidence/precision shall be used as the correct value.

AMS-II.G. provides four options to determine $B_{y,savings,i,j}$, of which option 3 is default option under this PoA.

Accordingly, if Option 2 is chosen: the parameter $B_{y,new,KPT}$ is monitored through performing a KPT on a randomly selected sample of target end-users participating in the CPA. The data collected is the daily mass

of wood used per target end-users for at least three consecutive days. The KPT follows the latest guidelines of the Kitchen Performance Test developed by PCIA as required by AMS-II.G.

As per paragraph 55 of the latest version of “Guideline: Sampling and surveys for CDM project activities and PoAs” the minimum sample size of large populations of numeric values (such as mean values) can be approximated as:

$$n_{\eta} \geq \frac{t_{\alpha/2}^2 N_{age,y} V}{0.1^2}$$

Where:

$$V = \left(\frac{\text{standard deviation}}{\text{mean}} \right)^2$$

$N_{age,y}$ Number of stoves distributed belonging to the age class y

$t_{\alpha/2}$ Student t critical values

One sample per age class is calculated.

If Option 3 or 4 is selected: For $\eta_{new,i,j}^1/SC_{new,i,j}/B_{y=1,new,i,j,survey}$ the sample size is calculated using the formula mentioned in the “Guideline: Sampling and surveys for CDM project activities and PoAs” (simple random sampling, para.51) applicable to the determination of a mean value parameter:

$$n_{\eta} \geq \frac{t_{\alpha/2}^2 N_{age,y} V}{(N_{age,y} - 1) \cdot 0.1^2 + t_{\alpha/2}^2 V}$$

Where:

$$V = \left(\frac{\text{standard deviation}}{\text{mean}} \right)^2$$

$N_{age,y}$ Number of stoves distributed belonging to the age class y

$t_{\alpha/2}$ Student t critical values

For $\eta_{new,i,j}$, one sample per age class is calculated in case efficiency losses are measured from a representative sample of each batch (sub-option d).

In case of determination of the rate of efficiency drop as per option (c) of AMS-II.G version 8 methodology §25, the degradation of efficiency measured in a representative sample of the first batch of project devices will apply to all subsequent batches. The efficiency of the project devices in the first batch is monitored annually through representative samples and this rate of loss in efficiency will be applied correspondingly to all batches.

In general, if the sample size calculation returns a value of less than 30 samples, a minimum sample size of 30 is chosen when the parameter of interest is a proportion. If the parameter of interest is a numeric mean value (i.e. not a proportion or percentage) the student's t -distribution is used if the resulting sample size is less than 30.

The sampling approach is duly explained in PoA-DD which has been assessed by the validation team. The sampling approach as explained in PoA-DD is found in line with the requirements of the Applied Methodology AMS-II.G/21/, General Guidelines for SSC-CDM methodologies, Version 22.1, CDM Project Standard for programmes of activities (Version 01.0)/20/ and Standard for “Sampling and surveys for CDM Project Activities and Programme of Activities”, Version 07.0/22/.

DOE's sampling approach

No Sampling approach used by validation assessment team during on-site visit as there is no ICS were distributed under this PoA during onsite assessment. However, the boundary of stove distribution and baseline was checked and found appropriate.

The sampling as discussed in PoA-DD were checked against the requirement of applied methodology and Standard for “Sampling and surveys for CDM Project Activities and Programme of Activities”, Version 07.0/22/. The assessment team has also reviewed the ICS test report which were tested at the testing lab. The sampling approach including sampling design, sampling size calculation is found correct and in line with the requirement of the methodology.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation of compliance	No. of CL	No. of CAR	No. of FAR
Programme of activities	-	-	-
Identification of the programme type	-	-	-
General description of the PoA	-	CAR#02	-
Management system	-	-	-
Demonstration of additionality of the PoA	CL#01	CAR#03	-
Start date and duration of the PoA	-	-	-
Environmental impacts	-	CAR#04	-
Socio-economic impacts	-	-	-
Local stakeholder consultation	-	-	FAR#01
Sustainable development co-benefits	-	-	-
Approval	CL#01	-	-
Authorization	-	CAR#06	-
Modalities of communication	-	-	-
Global stakeholder consultation	-	-	-
Generic component project activities	-	-	-
General description of generic CPA	-	CAR#06	-
Application and selection of methodologies and standardized baselines	-	-	-
• Application of methodologies and standardized baselines	-	-	-
• Deviation from methodologies and/or methodological tools	-	-	-
• Clarification on applicability of methodology, tool and/or standardized baseline	-	-	-
• Project boundary, sources and GHGs	-	-	-
• Baseline scenario	-	-	-
• Estimation of emission reductions or net anthropogenic removals	-	-	-
• Monitoring plan	-	CAR#05	FAR#02
Crediting period type and duration	-	-	-
Eligibility criteria for inclusion of CPAs	-	-	-
Others (please specify)	-	-	-
Total	01	05	02

SECTION D. Validation findings

D.1. Programme of activities

D.1.1. Identification of the programme type

Means of validation	The PoA is distribution of Improved Cook Stoves (ICS) in the country of Ghana. The PoA aims to reduce non-renewable wood fuel consumption and greenhouse gas emissions of users by selling affordable ICSs in replacement of traditional cooking
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	<p>stoves as calculated ex ante for each Component Project Activity of the PoA.</p> <p>The PoA is a Type-II small scale project activity.</p> <p>The approved baseline and monitoring methodology applied to the PoA is AMS-II.G.: "Energy efficiency measures in thermal applications of non-renewable biomass", version 8.0.</p>
Findings	No findings raised.
Conclusion	The assessment team confirms that the PP has correctly identified the type and category of the Project activity. The PoA-DD was found to comply with the applicable latest PoA-DD form and instructions therein and is in line with the requirement contained in VVS for PoA version 1.0, para 37.

D.1.2.General description of the PoA

Means of validation	<p>A physical inspection of the site was conducted by the validation team as included under Section III.2 of this report. The validation team, through the physical inspection were able to confirm that description and physical features of the project were consistently reported in the PoA-DD.</p> <p>The proposed PoA involves dissemination of Improved Cooking Stoves (ICSs) to end-users in Ghana in replacement of traditional cooking stoves using non-renewable wood fuel. The purpose of the PoA and its Component Project Activities (CPAs) is to mitigate climate change and contribute to sustainable development in Ghana. The PoA-DD/1/ submitted transparently discussed all details of PoA.</p> <p>The generic CPA part of a PoA-DD (hereinafter referred to as generic CPA-DD) has been prepared for each technology/measure in accordance with the relevant requirements in the "CDM project standard for programmes of activities"/20/.</p> <p>The geographical boundary of the PoA covers the whole Republic of Ghana (10 administrative regions) as validated during site visit by interviewing the top management of CME and CPA implementer.</p> <p>The PoA has not received any public funding as confirmed by interviewing and discussion with CME representative Mr. Alexandre Dunod. CME also confirmed that public funding of the PoA, if any, does not result in a diversion of ODA as per OECD's definition of Official Development Assistance (ODA).</p> <p>Each CPA implementer will declare any use of public funds from Parties in Annex I to the UNFCCC in the CPA-DD. If such funds are used, the Annex I Party confirms to the CPA implementer that the public funding for the CPA does not result in a diversion of ODA and is separate from and is not counted towards the donor country's financial obligations as of the Party.</p> <p>CPA implementers sell affordable Improved Cooking Stoves (ICSs) to end-users in Ghana in replacement of traditional cooking stoves using non-renewable wood fuel. Since ICSs are more efficient than traditional cooking stoves, users save non-renewable wood fuel during cooking seasons leading to greenhouse gas (GHG) emission reductions and mitigating climate change. The PoA targets at multiple locations countrywide, with a focus on urban and peri-urban areas with a high-density of inhabitants and increased wood fuel consumption. Urban and peri-urban areas still host around half of the Ghanaian population.</p> <p>The PoA's focus is on households (besides small and medium-sized enterprises (SMEs) and communities) and the replacement of charcoal-based devices.</p> <p>Since there are neither laws nor regulations in Ghana that require the distribution and use of ICS whatsoever, the PoA is a voluntary action.</p> <p>In baseline scenario, woody biomass (mostly non-renewable) is burnt in traditional cook stoves for cooking based on traditional kilns to generate charcoal. According to the information gathered by Ghana's National Energy Commission (2017), biomass accounts for 39% of final energy consumption in the country, being a predominant cooking fuel in households and small industries. Ghanaians depend on solid fuels for domestic and commercial use, which has been a pattern over the years; 73% of households use wood fuels for cooking. The assessment team has reviewed the Ghana Living Standards Survey (GLSS)/26/ and found that the</p>
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	<p>information provided are correct.</p> <p>In project scenario, the same amount of thermal energy is generated from less amount of woody biomass.</p> <p>The efficiencies of cook stove are determined based on the test results tested in the certified laboratory. The test reports were provided to assessment team. The assessment team has reviewed the test report and concluded that the efficiency tests were conducted in accordance with the procedure stipulated in the applied methodology AMS-II.G, version 8.0/21/.</p> <p>The testing procedure is also confirmed by visit to the testing laboratory during onsite assessment.</p> <p>ECOEYE Co., Ltd. is project participant in this PoA. ECOEYE Co. Ltd. will provide all implementation cost for all the CPAs of the PoA. It will provide stove subsidy to make ICS affordable to household and also provide all operation & maintenance cost of ICS production and distribution for CME and CPA implementers to operate the PoA and CPAs under financially sustainable condition.</p> <p>The coordinating and managing entity (CME) for the proposed PoA is AERA GROUP S.A.S. It coordinates the efforts of potential CPA implementers to distribute ICSs throughout Ghana. A principal CPA implementer will be Man and Man Enterprise, which is the only technology supplier under this PoA. The agreement between Man & Man enterprises and AERA/13/ is checked by the assessment team and confirm that the M&M enterprises is the CPA implementer. The validation team has confirmed the involvement of Man and Man during onsite assessment and also visited the ICS manufacturing location.</p>
Findings	CL#01 and CAR#02 were raised and resolved.
Conclusion	<p>The validation team confirms;</p> <p>(a) The process undertaken to validate the accuracy and completeness of the project is described above (under MoV);</p> <p>(b) The project description contained in the PoA-DD of the proposed CDM programme of activity is accurate and complete;</p> <p>(c) It has conducted an on-site inspection.</p> <p>(d) The validation team confirms that the proposed CDM PoA meets the eligibility criteria for methodology AMS-II.G.</p> <p>(e) The description is in accordance with the PS including description of the purpose of the PoA and explanation how the PoA will reduce GHG emissions. The Project is neither registered as a CDM project activity nor included in another CDM PoA and thus meeting the requirement of VVS para 38-43.</p>

D.1.3. Management system

Means of validation	<p>Validation team based on the review of PoA-DD confirms that clear and transparent description of the operational and management arrangement has been established by the CME for the PoA.</p> <p>The same has also been confirmed during the site visit and interview with the CME and CPA implementer representatives. All the details of individual CPAs including the documents shall be controlled by CPA implementer. Furthermore, the records of individual CPAs shall be maintained by the CME. Individual CPA implementer shall sign an agreement with the CME and agrees to comply with all terms and conditions of the PoA including those related to the monitoring and data control. The assessment team has reviewed the template agreement between the CPA implementers and the CME where the eligibility criteria for the inclusion of the CPA in PoA are mentioned. Hence, any CPA which would be included in the PoA shall follow the operation and management plan of the PoA as stated in the PoA DD and signed agreement.</p> <p>The CME has a well-defined project management structure for monitoring of the CPA which can be verified from the PoA-DD. The monitoring plan describes the Organization chart, Monitoring plan objective and Organization, Monitoring and archiving data, QA and QC procedures, data storage etc.</p>
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	Personnel	Responsibilities in inclusion process
	PoA manager/ CME	<ul style="list-style-type: none"> -Contact with CPA implementer -Review CPA according to PoA eligibility criteria -Prepare and sign agreement for CPA inclusion between CMA and CPA implementer -Notify CPA implementer of submission of CPA-DD to DOE for inclusion -Decide on CPA inclusion and notify CPA implementer -Assess additionality and eligibility of CPA against documents provided by CPA implementer -Control work of all subcontractors undertaking critical activities on behalf of CME
	CPA implementer	<ul style="list-style-type: none"> -Carry out Local Stakeholder Consultation (LSC) -Provide evidence for CPA eligibility under the PoA including CPA-DD and emission reduction calculations -Implement CPA -Facilitate, support and cooperate the CME and Carbon Consultant during CPA inclusion and verification process
	Carbon consultant	<ul style="list-style-type: none"> -Assist CME and CPA implementer to reach CPA inclusion through the following, among others, <ul style="list-style-type: none"> •carry out LSC •draft CPA-DD and emission reduction calculations •organize CDM on-site visit with DOE and stakeholder consultation •follow up - Assist CME and CPA implementer to reach verification of emission reductions after CPA inclusion, including <ul style="list-style-type: none"> •conduct training in monitoring of data, •write monitoring reports
	Monitoring team (after CPA inclusion)	<p>On behalf of the CPA implementer:</p> <ul style="list-style-type: none"> -Implement monitoring plan -Collect and check monitoring data -Implement a monitoring database.
All the monitoring data is stored / will be recorded and kept under safe custody of the CME for a period of crediting period + 2 years or the last issuance of CERs + 2 years whichever occurs later.		
Findings	No findings raised.	
Conclusion	<p>The validation team has assessed the process and competencies of the team members in each of the teams while carrying out interviews during the course of validation and considers the same to be adequate and in line with the requirements. The management system of the proposed PoA is in accordance with the para 36-37 of CDM PS for programme of Activities version 1.0/20/ and is described transparently in PoA-DD.</p>	

D.1.4.Demonstration of additionality of the PoA

Means of validation	<p>The proposed project activity has demonstrated additionality by applying the “Tool for Demonstration of additionality of microscale projects”</p> <p>All the details are supported by relevant and sufficient evidences for demonstrating the appropriateness of the chosen value.</p> <p>Prior consideration of the clean development mechanism:</p> <p>The start date of the PoA is considered as 26/04/2017, the date when the CME officially notified the UNFCCC secretariat and the DNA of their intention to seek the CDM status which is before the start of the Global Stakeholder Consultation. The assessment team has checked the UNFCCC webpage at</p>
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	<p>http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html/31/ and found that the receipt of prior consideration notification is 26/04/2017. The start date of the PoA as considered is found in line with the para 6 of CDM PCP for Programme of Activities version 01.0/30/.</p> <p>Description of Additionality:</p> <p>Additionality has been demonstrated by applying the “Tool for Demonstration of additionality of microscale projects”.</p> <p>The applied small-scale methodology AMS-II.G. (“Energy efficiency measures in thermal applications of non-renewable biomass”) Version 08.0/21/, refers to “Tool: Demonstration of additionality of small-scale project activities” Version 11.0/24/ to demonstrate the additionality.</p> <p>The PoA consists of one or more small-scale projects as CPAs and the Tool provides guidance of the provisions for automatic additionality in “Tool for Demonstration of additionality of small-scale project activities” Version 11.0/24/ and “Tool for Demonstration of additionality of microscale projects” Version 8.0/32/.</p> <p>The additionality of each CPA is demonstrated by complying corresponding eligibility criteria as provided in section K of PoA-DD.</p> <p>Para 17 of the Tool mentions that “For CPAs applying microscale thresholds at the unit level rather than at the aggregate level of the CPA, the term ‘project activities’ in paragraphs 8 - 12 and 14 above shall be read as ‘units’. If each of the units contained in the CPA satisfies the condition to qualify as a ‘microscale CDM unit’, then the coordinating/managing entity is not required to demonstrate compliance of the CPA with the microscale or small-scale thresholds at the aggregate level of the CPA.</p> <p>In such cases, the requirements related to de-bundling stated in paragraphs 13 and 16 do not apply either.”</p> <p>Consequently, CPAs under this PoA are not limited in size by CPA thresholds as each of the ICS units contained in the CPAs aims to achieve energy savings at a scale of no more than 20 GWh/year, as required by paragraph 9 of the Tool, which states that</p> <p>“Energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 gigawatt hours per year are additional if any one of the conditions below is satisfied:</p> <p>(a) The geographic location of the project activity is in an LDC/SIDS or SUZ of the host country identified by the government in accordance with the paragraph 8(a)(i) above;</p> <p>(b) The project activity is an energy efficiency activity with both conditions (i) and (ii) below satisfied:</p> <p>(i) Each of the independent subsystems/measures in the project activity achieves an estimated annual energy savings equal to or smaller than 600 megawatt hours;</p> <p>(ii) End users of the subsystems or measures are households/communities/SMEs,”</p> <p>Each subsystem under the project achieves an estimated annual energy savings equal to or smaller than 600 megawatt hours. The ICS will be distributed to the households/communities/SMEs in each CPA under the PoA. Thus, each ICS qualifies as a ‘microscale CDM unit. The efficiency of the ICS is confirmed from the test certificate as provided to the assessment team.</p> <p>Thus, validation team confirms that the requirements of the “Standard for demonstration of additionality, development of eligibility criteria and application of methodology for programme of activities” with respect to the demonstration of additionality are met and PoA is considered as additional.</p>
Findings	CAR#03 was raised and resolved.
Conclusion	The assessment of the PoA’s compliance with the applicability criteria of AMS II.G, version 08/21/ and is additional. The validation team also confirms that the requirements of the “Standard for demonstration of additionality, development of eligibility criteria and application of methodology for programme of activities” with

	respect to the demonstration of additionality are met and PoA is considered as additional.
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D.1.5.Start date and duration of the PoA

Means of validation	The PoA start date is considered as 26/04/2017, the date when the CME officially notified the UNFCCC secretariat and the DNA of their intention to seek the CDM status. The expected length of the PoA is 28 years. The assessment team has checked the UNFCCC webpage at http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html_/31/ and found that the receipt of prior consideration notification is 26/04/2017. The start date of the PoA as considered is found in line with the para 6 of CDM PCP for Programme of Activities version 01.0.
Findings	No findings raised.
Conclusion	By the review of documents and site visit the assessment team confirmed that the start date of the PoA is correctly considered and is in line with the para 6 of CDM PCP for Programme of Activities version 01.0/30/.

D.1.6.Environmental impacts

Means of validation	The PoA consists of ICS in households/communities/SMEs in the Republic of Ghana. As a result of the PoA, the consumption of wood fuel is reduced, which constitutes a direct positive impact on the environment. Environmental impact analysis is undertaken at the PoA level only. As the PoA involves the installation of ICS, the host country regulations do not mandate any Environmental Analysis. The assessment team confirms the same through approved LoA/04/, site visit.
Findings	CAR#04 was raised and resolved.
Conclusion	The Environmental analysis has not been carried out by the CME as it is not a requirement. The justification given in the CPA-DD was found to be appropriate. The DOE confirms that the PoA does not require environment impact assessment in the host country.

D.1.7.Socio-economic impacts

Means of validation	The PoA is not a A/R CDM PoA; thus not applicable. The same is confirmed during onsite assessment.
Findings	No findings raised.
Conclusion	The proposed PoA is not a A/R CDM PoA and Socio-economic impact analysis is not required in line with para 48 of CDM PS for PoA version 1.0.

D.1.8.Local stakeholder consultation

Means of validation	The local stakeholder consultation (LSC) will be undertaken at the CPA level to ensure comments / concerns of the local stakeholders on the intended installation of the ICS in households/communities/SMEs in the region. A local stakeholders meeting was carried out by the PoA participant on 15/06/2017 /16/ which was prior to the publication of PoA-DD on the UNFCCC website (30/06/2017 to 29/07/2017). The meeting took place in Tyco city hotel in Sunyani, Ghana. It is confirmed that all the relevant stakeholders identified are in line with the definition of stakeholders as per latest version of CDM Glossary of terms. The local stakeholders identified by the PoA participant were the representatives of EPA, Govt. Authorities, ICS users and other similar organizations. PP has also provided newspaper publication to invite these stakeholders. During the meeting, stakeholders were asked to directly comment on the project. A summary of the comments received and a note on how due account was taken of the concerns raised in the above public consultation are provided by CME. Validation team reviewed all relevant information/14/15/16/ of local stakeholder consultation meeting and confirms that the LSC meeting meets to the requirement of VVS/19/. The validation team confirms that the process for conducting the local stakeholders meeting is adequate and credible. During the onsite visit, representatives from the local community were interviewed. In general, the
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	interviewees showed adequate understanding of the nature of the project and felt that there would be no adverse impacts on the environment arising from the project activity.
Findings	CL#01 was raised and resolved. FAR#01 is raised and to be checked during first request for issuance.
Conclusion	The Local Stakeholder consultation process will be performed at the CPA level, as local stakeholders may vary according to the specific CPA. DOE hereby confirm that comments that are relevant for proposed PoA have been invited from the local stakeholders, the summary of the comments received as provided by CME/PP is complete and LSC has been conducted adequately. The CME/CPA implementer has taken due account of all comments received , thus meeting the requirement of para 58-66 of VVS version 1.0/19/.

D.1.9.Sustainable development co-benefits

Means of validation	PP has provided the details of contribution to sustainable development in host country in PoA-DD/01/. A letter of approval (LoA)/04/ is issued by DNA of Ghana on 18/12/2017, authorizing Name of coordinating/managing entity and specific CPA implementer of host Party as project participant and confirming that the project assists in achieving sustainable development.
Findings	CL#01 was raised and resolved.
Conclusion	The validation team confirms the technology which is implemented reflects the current good practice in the host country. Implementation of the project activity will not involve any technology transfer from Annex-1 countries to the host country. The validation team further confirms that the host Party's DNA has confirmed the contribution of the proposed CDM project activity to the sustainable development of the host Party.

D.1.10.Approval

Means of validation	<p>The host Party for proposed CDM programme of activities is Ghana. PP has provided the LoA letter/04/ dated 18/12/2017. The other party involved is Republic of Korea. The PP has also provided the LoA from Republic of Korea dated 02/01/2018/39/. The assessment team has checked the LoA and found correct and consistent with the details provided in PoA DD. No Party is proposed as Annex 1 Party.</p> <p>The information of the DNA has been confirmed by the validation team against the relevant information on the UNFCCC CDM website (http://cdm.unfccc.int/DNA/index.html)</p> <p>The validation team has determined that LoA /04/ confirms that:</p> <ul style="list-style-type: none"> (a) The Party is a Party to the Kyoto Protocol; (b) Participation is voluntary; (c) The proposed CDM PoA contributes to the sustainable development of the country; (d) It refers to the precise title of the proposed CDM PoA in the PoA-DD. <p>The LoA/04/ is issued by the respective Party's DNA – Ministry of Environment, science, technology & innovation, Government of Ghana. The LoA from Korea is issues by Ministry of Trade, Industry and Energy, The Republic of Korea. The LoA mentions the location of project site allowing the precise location of site of the project activity, thereby confirming that the project activity is proposed to be implemented in Ghana.</p> <p>The validation team does not doubt the authenticity of the LoA /04/ and therefore no further means of validation were applied.</p>
Findings	CL#01 and CAR#06 was raised and resolved.
Conclusion	<p>The validation team confirms that;</p> <ul style="list-style-type: none"> (a) the LoA /04/ unconditionally meets the requirements of paragraph 69 of CDM

	<p>VVS for Programme of Activities version 1.0 /19/</p> <p>(b) the LoA /04/ was received from the project participants clearly indicates that Ghana is the only host country in which the project activity is located;</p> <p>(c) The LoA/04/ is issued by the respective Party's DNA - Ministry of Environment, science, technology & innovation, Government of Ghana.</p> <p>(d) the LoA /04/ is in accordance with paragraphs 69-80 of CDM VVS for Programme of Activities version 1.0 /19/</p> <p>(e) Ghana is a party to the Kyoto protocol;</p> <p>(f) The participation of project participant has been approved/ authorized by the DNA of host Party.</p> <p>(g) The participation has been confirmed in the LoAs itself, which contains the name of the PP to which it is issued</p> <p>(h) The information is consistent within the project documentation viz., PoA DD, LoA and signed MoC.</p>
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D.1.11.Authorization

Means of validation	<p>AERA GROUP S.A.S. is the coordinating/managing entity (CME) of this PoA. It coordinates the efforts of potential CPA implementers to distribute ICSs throughout Ghana.</p> <p>A principal CPA implementer will be Man and Man Enterprise, which is the only technology supplier under this PoA. The CME has to approve CPA proposals of CPA implementers.</p> <p>ECOYEY CO., LTD is project participant from Republic of Korea in the PoA.</p> <p>The validation team confirms that the project participants are consistently reported in the PoA-DD /1/.</p> <p>The validation team confirms that the approval of participation has been issued from the relevant DNA and the participation is valid for the project participants of the proposed CDM project activity.</p>
Findings	CL#01 and CAR#06 was raised and resolved.
Conclusion	<p>The validation team confirms that the letter of approval meets all CDM requirements contained in VVS PoA version 1.0, para 75-80 /19/, as validated below;</p> <p>(a) The participation has been authorized by a Party to the Kyoto Protocol;</p> <p>(b) The information in this regard was validated from the UNFCCC website https://cdm.unfccc.int/DNA/bak/index.html</p>

D.1.12.Modalities of communication

Means of validation	<p>The validation team has validated the corporate identity of the project participant and focal points included in the Modalities of Communication (MoC) statement, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories.</p> <p>The CDM-MOC-FORM/33/ submitted dated 26/07/2018 by the PP, approves Rhee Soo Bok as primary Authorized signatory and Sang Sun Ha as alternate authorized signatory from Ecoeye Co. Ltd.; Ki Deok Park as primary Authorized signatory and Juon Michael Choi as alternate authorized signatory from Korea Zinc Co. Ltd.; Aureili Lepage as primary authorized signatory and Fabrice Le Sache as alternate Authorized signatory from AERA Group SAS.</p> <p>The verification team interviewed the authorized signatory to confirm that the entity and personnel signing the MoC are duly authorized and it meets the requirement as per para 82(a) of CDM VVS for PoA/19/. Passport copies /41,42/ of the person authorized for signing in the MoC documents has also been checked by the assessment team.</p> <p>The validation team has checked that:</p> <p>(a) The valid version of the form "Modalities of Communication statement" (F-CDM-MOC)/34/ has been used;</p>
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	<p>(b) The information required as per the F-CDM-MOC, including its annex 1, is correctly completed;</p> <p>(c) The project participants' authorized signatories signing the F-CDM-MOC correspond to the project participants' authorized signatories included in F-CDM-MOC, annex 1.</p>
Findings	No findings raised.
Conclusion	<p>The validation team confirms that it has performed due diligence on the MoC statement /33/ in accordance with the requirements established in para 81-89 CDM VVS for PoA version 1.0/19/.</p> <p>The validation team confirms that the MoC statement /33/ complies with all relevant forms and requirements.</p>

D.1.13. Global stakeholder consultation

Means of validation	<p>The PoA-DD/1/ and CPA-DD was made publicly available through a dedicated interface on the UNFCCC CDM website for global stakeholder consultation at following URL; https://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/U61XNJVVUE9I8UKFN8IPW5JZYR3RZN/view.html</p> <p>The duration of the period for submission of comments for the global stakeholder consultation was 30 days from 30/06/2017 to 29/07/2017.</p> <p>No comments were received during the commenting period.</p>
Findings	No findings raised.
Conclusion	No comments received during commenting period.

D.2. Generic component project activities

D.2.1. General description of generic CPA

Means of validation	<p>The proposed CPA involves dissemination of Improved Cooking Stoves (ICSs) to end-users in Ghana in replacement of traditional cooking stoves using non-renewable wood fuel. The purpose of the CPA is to mitigate climate change and contribute to sustainable development in Ghana.</p> <p>CPAs aims to reduce non-renewable wood fuel consumption and greenhouse gas (GHG) emissions of households (hereafter also "end-users") in the urban and peri-urban region of Ghana by selling affordable Improved Cooking Stoves (ICSs) in replacement of traditional charcoal cooking stoves, so-called coal pots, resulting in emission reductions throughout the crediting period.</p> <p>The ICS distributed under CPAs is Jiko-type ICS. It is also known as the "Holy cook", which is the brand name of the Jiko-type ICS produced by Man and Man Enterprise. Compared to coal pots, which have an efficiency of 15%-18%, Holy Cooks (project ICSs) have an efficiency of about 30% while providing the same service. This allows better heat retaining, i.e. quicker heating-up and longer cooking times with less wood fuel (and combustion fumes).</p> <p>The efficiency of the ICS is checked from the test report provided by Technology Consultancy Centre KNUST, Kumasi; a third party testing laboratory and the details are found correct.</p> <p>The assessment team has checked the ICS manufacturing process during onsite assessment and interviewed the plant personnel.</p> <p>The Generic CPA is a small-scale project and the approved baseline and monitoring methodology applied to the CPA in the PoA is Version 08.0 of AMS-II.G.: "Energy efficiency measures in thermal applications of non-renewable biomass"/21/. It is confirmed that the details provided in CPA-DD/02/ are found correct.</p> <p>The coordinating and managing entity (CME) for CPAs under the proposed PoA is AERA GROUP S.A.S. The CPA implementer is Man and Man Enterprise, a Ghana-based ICS producer and seller and ECOEYE CO., LTD as carbon finance company based in South Korea.</p> <p>The agreement between Man & Man enterprises and AERA/13/ is checked by the</p>
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	assessment team and confirm that the Man & Man enterprises is the CPA implementer. The validation team has confirmed the involvement of Man and Man during onsite assessment and also visited the ICS manufacturing location. PP has provided the generic CPA-DD/02/ in correct applicable version of CDM-CPA-DD-FORM version 8.1/35/
Findings	CL#01 and CAR#02 were raised and resolved.
Conclusion	The validation team confirms that the description of the generic CPA(s) in the PoA-DD is accurate, complete, and provides an understanding of the generic CPA(s) and is found in line with para 90-91 of CDM VVS for PoA, version 1.0/19/.

D.2.2.Application and selection of methodologies and standardized baselines

D.2.2.1.Application of methodologies and standardized baselines

Means of validation	The approved baseline and monitoring methodology applied to the CPAs in the PoA is Version 08.0 of AMS-II.G.: "Energy efficiency measures in thermal applications of non-renewable biomass"/21/. The assessment team has checked and reviewed the CPA-DD and other related documents and confirms that the PoA participant has correctly applied the methodology and the version of the methodology is applicable at the time of submission of PoA for registration.
Findings	No findings raised.
Conclusion	The selected methodology is applicable to the PoA and the version of the applied methodology is valid at the time of submission for registration. For each of the applicability condition listed in the methodology AMS-II.G. Version 08/21/, the steps taken to assess the relevant information contained in the PoA-DD has been clearly described. The validation team confirms that the correctly applied by the PoA participant and is in line with the para 97-104 of CDM VVS for PoA version 1.0/19/.

D.2.2.2.Deviation from methodologies and/or methodological tools

Means of validation	The assessment team has reviewed the PoA-DD/01/ and applied approved methodology and it is confirmed that no deviation is observed.
Findings	No findings raised.
Conclusion	No deviation is observed in the PoA to the applied methodology.

D.2.2.3.Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	No clarification applied approved methodology and it is confirmed that no deviation is observed.
Findings	No findings raised.
Conclusion	No clarification applied in the proposed PoA/CPA.

D.2.2.4.Project boundary, sources and GHGs

Means of validation	The project boundary was validated by conducting the site visit and it was confirmed by the CME during the onsite interview that the CPAs will be distributed within the country of Ghana.				
	CPAs will be implemented in different region of Ghana.				
	The validation team was able to confirm that all the identified emission sources which are impacted by the project activity are addressed by the approved methodology. The details are mentioned below:				
	Source		GHG	Included in SSC-CPA	Justification/Explanation
	Baseline	CO ₂ emissions from consumption of non-renewable woody biomass in low-efficiency traditional cooking stoves	CO ₂	Yes	Main emission source.
CH ₄			No	Minor emission source (neglected for simplification).	
N ₂ O			No	Minor emission source (neglected for simplification).	

	Project activity	CO ₂ emissions from consumption of non-renewable woody biomass in improved cooking stoves distributed by the project activity	CO ₂	Yes	Main emission source.
			CH ₄	No	Minor emission source (neglected for simplification).
			N ₂ O	No	Minor emission source (neglected for simplification).
Findings	No findings raised.				
Conclusion	The validation team was able to confirm that all the identified emission sources which are impacted by the project activity are addressed by the approved methodology and is in line with the requirements of para 105-110 of CDM VVS for PoA version 1.0/19/.				

D.2.2.5. Baseline scenario

Means of validation	<p>The baseline scenario is in accordance with para 14 of the applied methodology AMS-IIG, version 08/21/</p> <p>It is assumed that in the absence of the project activity, the baseline scenario would be the projected use of fossil fuels to meet similar thermal energy needs as those provided by the project devices.</p> <p>During the site visit, the end users were questioned to confirm that they were burning wood-fuel in traditional cook stoves to meet their thermal energy needs.</p> <p>It is also assumed that there is only one device per household in line with para 22 of the applied methodology.</p> <p>Since charcoal is also used as the fuel by baseline (old) or project (new) devices, the quantity of woody biomass shall be determined by using a default wood to charcoal conversion factor of 6 kg of firewood (wet basis) per kg of charcoal (dry basis).</p> <p>The scenario has been corroborated from the PoA DD/01/ also.</p> <p>Thus, it can be concluded that the baseline scenario defined in the generic CPA DD/02/ for each CPA in line to the applied methodologies.</p>
Findings	CAR#03 was raised and resolved.
Conclusion	<p>The validation team based on the description provided above with regard to the assessment of the requirements confirms that:</p> <p>(a) All the assumptions and data used by the project participants are listed in the PoA-DD/01/ and generic CPA-DD/02/ and or it's annexures, including their references and sources;</p> <p>(b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PoA-DD/01/ and generic CPA-DD/02/; Also, PP has clearly demonstrated the baseline in the PoA-DD/01/ and generic CPA DD/02/;</p> <p>(c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;</p> <p>(d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PoA-DD/01/ and generic CPA-DD/02/;</p> <p>(e) The approved baseline methodology has been correctly applied to identify the most plausible baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.</p> <p>(f) No standardized baseline has been applied.</p> <p>The validation team confirms that it has taken other steps and other sources of</p>

information used to cross-check the information contained in the PoA-DD/01/ and generic CPA-DD/02/, wherever applicable, as listed above.

D.2.2.6. Estimation of emission reductions or net anthropogenic removals

Means of validation	<p>Following options have been chosen by the PP:</p> <ul style="list-style-type: none"> The CPA makes use of option 3 (Para 20, equation 6) of the methodology AMS-II.G. version 8.0/21/ to calculate $B_{y,savings}$. The biomass used in the project has been demonstrated to be non-renewable by meeting the criteria (a) and (b) of the applied methodology AMS-II.G. version 8.0/21/. The CPA uses the default leakage adjustment factor of 0.95 to account for leakage emissions, default value of emission of baseline cook stoves, default value of Net calorific value of non-renewable woody biomass that is consumed in the baseline and project scenarios. <p>Data and parameters fixed ex-ante:</p> <table border="1"> <thead> <tr> <th>Parameter</th><th>MoV</th></tr> </thead> <tbody> <tr> <td>Annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices, $B_{old,HH}$ (tonnes/household/year):</td><td> <p>This parameter will be fixed ex-ante and will be determined at CPA level.</p> <p>AMS-II.G provides the following options:</p> <ol style="list-style-type: none"> $B_{old,p}$ times $N_{p,HH}$ or Based on the historical data or a sample survey conducted as per the latest version of "sampling and surveys for CDM project activities and programme of activities". If the monitoring period is shorter or longer than one year, the result may be extrapolated for the monitoring period. <p>As for the fixed value for urban areas, historical data (option 2) will be used. The parameter will be calculated for each CPA at time of inclusion. The validation team has checked the generic CPA-DD/02/ as well as the PoA-DD/01/ and the applied methodology AMS-II.G./21/. The DOE confirms that the list of parameters which are determined ex-ante i.e. before inclusion is complete, found in line with the methodology, and for includes appropriate details for this parameter.</p> </td></tr> <tr> <td>Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device type i and batch j $B_{old,i,j}$ (tonnes/year):</td><td> <p>PP has Established this value ex ante prior to project implementation at CPA level. $B_{old,i,j}$ is calculated as $B_{old,HH} / N_{d,HH}$</p> <p>$B_{old,i,j}$ equals $B_{old,HH}$ when only one project device per household is taken account.</p> <p>Adjusted formula in line with methodology will be used in case more than one cook-stove per household is used for calculation of the parameter $B_{old,i,j}$.</p> <p>The parameter will be determined at each CPA inclusion based on the latest literature/data. The validation team has checked the generic CPA-DD/02/ as well as the PoA-DD/01/ and the applied methodology AMS-II.G./21/. The DOE confirms that the list of parameters which are determined ex-ante, i.e. before inclusion is complete and for includes appropriate details for this parameter and found in line with the applied</p> </td></tr> </tbody> </table>	Parameter	MoV	Annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices, $B_{old,HH}$ (tonnes/household/year):	<p>This parameter will be fixed ex-ante and will be determined at CPA level.</p> <p>AMS-II.G provides the following options:</p> <ol style="list-style-type: none"> $B_{old,p}$ times $N_{p,HH}$ or Based on the historical data or a sample survey conducted as per the latest version of "sampling and surveys for CDM project activities and programme of activities". 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The validation team has checked the generic CPA-DD/02/ as well as the PoA-DD/01/ and the applied methodology AMS-II.G./21/. The DOE confirms that the list of parameters which are determined ex-ante, i.e. before inclusion is complete and for includes appropriate details for this parameter and found in line with the applied</p>
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Annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices, $B_{old,HH}$ (tonnes/household/year):	<p>This parameter will be fixed ex-ante and will be determined at CPA level.</p> <p>AMS-II.G provides the following options:</p> <ol style="list-style-type: none"> $B_{old,p}$ times $N_{p,HH}$ or Based on the historical data or a sample survey conducted as per the latest version of "sampling and surveys for CDM project activities and programme of activities". If the monitoring period is shorter or longer than one year, the result may be extrapolated for the monitoring period. <p>As for the fixed value for urban areas, historical data (option 2) will be used. The parameter will be calculated for each CPA at time of inclusion. The validation team has checked the generic CPA-DD/02/ as well as the PoA-DD/01/ and the applied methodology AMS-II.G./21/. The DOE confirms that the list of parameters which are determined ex-ante i.e. before inclusion is complete, found in line with the methodology, and for includes appropriate details for this parameter.</p>						
Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device type i and batch j $B_{old,i,j}$ (tonnes/year):	<p>PP has Established this value ex ante prior to project implementation at CPA level. $B_{old,i,j}$ is calculated as $B_{old,HH} / N_{d,HH}$</p> <p>$B_{old,i,j}$ equals $B_{old,HH}$ when only one project device per household is taken account.</p> <p>Adjusted formula in line with methodology will be used in case more than one cook-stove per household is used for calculation of the parameter $B_{old,i,j}$.</p> <p>The parameter will be determined at each CPA inclusion based on the latest literature/data. The validation team has checked the generic CPA-DD/02/ as well as the PoA-DD/01/ and the applied methodology AMS-II.G./21/. The DOE confirms that the list of parameters which are determined ex-ante, i.e. before inclusion is complete and for includes appropriate details for this parameter and found in line with the applied</p>						

	<p>Efficiency of the device being replaced $\eta_{old,i,j}$ (fraction):</p>	<p>methodology.</p> <p>The parameter will be fixed ex-ante and will be determined at CPA level based on AMS-II.G. for default values and/or baseline survey/literature, statistics etc. Efficiency of pre - project device, which is a three stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney; for other types of devices, a default value of 0.2 may be optionally used. Weighted average values (amount of woody biomass consumed by each device as the weighting factor) will be used if more than one type of system is being replaced.</p> <p>.</p> <p>The validation team has checked the generic CPA-DD/02/ as well as the PoA-DD/01/ and the applied methodology AMS-II.G./21/. The DOE confirms that the list of parameters which are determined ex-ante, i.e. before inclusion is complete and for includes appropriate details for this parameter and found in line with applied methodology.</p>
	<p>Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers, $EF_{projected_fossilfuel}$ (tCO₂/TJ):</p>	<p>PP has Established this value ex ante prior to project implementation at PoA level. The source of data is 2006 IPCC Guidelines for National Greenhouse Gas Inventories/17/. The value assumed is 81.6 tCO₂/TJ.</p> <p>The validation team has checked the PoA-DD/01/ and the applied methodology AMS-II.G./21/. The DOE confirms that the list of parameters which are determined ex-ante, i.e. before inclusion is complete and for includes appropriate details for this parameter.</p>
	<p>Conversion factor wood/charcoal, $m_{wood}/m_{charcoal}$ (kg biomass/kg charcoal):</p>	<p>PP has Established this value ex ante prior to project implementation at PoA level. The value assumed is 6. As per in AMS II.G./21/ para 23, where charcoal is used as the fuel by baseline (old) or project (new) devices, the quantity of woody biomass shall be determined by using a default wood to charcoal conversion factor of 6 kg of firewood (wet basis) per kg of charcoal (dry basis).</p> <p>The validation team has checked the generic CPA-DD/02/ as well as the PoA-DD/01/ and the applied methodology AMS-II.G./21/. The DOE confirms that the list of parameters which are determined ex-ante, i.e. before inclusion is complete and for includes appropriate details for this parameter.</p>
	<p>Net to gross adjustment factor to account for leakages, $Leakage_{adj}$ (fraction):</p>	<p>PP has Established this value ex ante prior to project implementation at PoA level. The value assumed is 0.95. As per in AMS II.G./21/, B_{old} is multiplied by a net to gross adjustment factor of 0.95 to account for leakages according to AMS-II.G.</p> <p>In case of households switching from baseline device using firewood to efficient project device using charcoal, default value of 0.030 tCH₄/t will</p>

	<table border="1"> <tr> <td data-bbox="440 141 842 521"></td><td data-bbox="842 141 1445 521"> <p>be applied to the charcoal consumption thermally equivalent to the baseline fuel consumption $B_{old,HH}$ (in accordance with “AMS-III.BG: Emission reduction through sustainable charcoal production and consumption”).</p> <p>The validation team has checked the generic CPA-DD/02/ as well as the PoA-DD/01/ and the applied methodology AMS-II.G./21/. The DOE confirms that the list of parameters which are determined ex-ante, i.e. before inclusion is complete and for includes appropriate details for this parameter.</p> </td></tr> <tr> <td data-bbox="440 521 842 1048"> <p>Specific fuel consumption or fuel consumption rate of the pre-project devices, SC_{old} (t fuel/unit output or t fuel/hour)</p> </td><td data-bbox="842 521 1445 1048"> <p>The data is fixed ex-ante and will be established at the time of CPA inclusion by CCT results for each CPA.</p> <p>1. Specific fuel consumption or fuel consumption rate of the pre-project devices, that is fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour, respectively. Specific fuel consumption or fuel consumption rate are to be determined using the CCT protocol carried out in accordance with national standards (if available) or international standards or guidelines.</p> <p>2. Use weighted average values if more than one type of device is being replaced (taking the amount of woody biomass consumed by each device as the weighting factor)</p> </td></tr> </table> <p>The validation team has checked the Ex-ante calculation emission reduction as provided in section I.6.3 in PoA-DD/01/.</p> <p>Baseline emission reduction will be calculated by the following equation:</p> $ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$ <p>Whereas $ER_{y,i,j}$ is calculated by;</p> $ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil\ fuel}$ <p>Option 3 (Water Boiling Test) of the applied methodology has been considered for the calculation of $B_{y,savings,i,j}$.</p> <p>The parameters and equations presented in the PoA-DD/01/ have been compared with the information and requirements available in the applied methodology/21/. An equation comparison has been made to ensure consistency between all the formulae presented in the PoA-DD/01/, CPA-DD/02/ and methodology/21/. The CPA-DD/02/ has to confirm to meet the procedures provided in the methodology and PoA-DD/01/.</p>		<p>be applied to the charcoal consumption thermally equivalent to the baseline fuel consumption $B_{old,HH}$ (in accordance with “AMS-III.BG: Emission reduction through sustainable charcoal production and consumption”).</p> <p>The validation team has checked the generic CPA-DD/02/ as well as the PoA-DD/01/ and the applied methodology AMS-II.G./21/. The DOE confirms that the list of parameters which are determined ex-ante, i.e. before inclusion is complete and for includes appropriate details for this parameter.</p>	<p>Specific fuel consumption or fuel consumption rate of the pre-project devices, SC_{old} (t fuel/unit output or t fuel/hour)</p>	<p>The data is fixed ex-ante and will be established at the time of CPA inclusion by CCT results for each CPA.</p> <p>1. Specific fuel consumption or fuel consumption rate of the pre-project devices, that is fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour, respectively. Specific fuel consumption or fuel consumption rate are to be determined using the CCT protocol carried out in accordance with national standards (if available) or international standards or guidelines.</p> <p>2. Use weighted average values if more than one type of device is being replaced (taking the amount of woody biomass consumed by each device as the weighting factor)</p>
	<p>be applied to the charcoal consumption thermally equivalent to the baseline fuel consumption $B_{old,HH}$ (in accordance with “AMS-III.BG: Emission reduction through sustainable charcoal production and consumption”).</p> <p>The validation team has checked the generic CPA-DD/02/ as well as the PoA-DD/01/ and the applied methodology AMS-II.G./21/. The DOE confirms that the list of parameters which are determined ex-ante, i.e. before inclusion is complete and for includes appropriate details for this parameter.</p>				
<p>Specific fuel consumption or fuel consumption rate of the pre-project devices, SC_{old} (t fuel/unit output or t fuel/hour)</p>	<p>The data is fixed ex-ante and will be established at the time of CPA inclusion by CCT results for each CPA.</p> <p>1. Specific fuel consumption or fuel consumption rate of the pre-project devices, that is fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour, respectively. Specific fuel consumption or fuel consumption rate are to be determined using the CCT protocol carried out in accordance with national standards (if available) or international standards or guidelines.</p> <p>2. Use weighted average values if more than one type of device is being replaced (taking the amount of woody biomass consumed by each device as the weighting factor)</p>				
Findings	CAR#05 was raised and resolved. FAR#02 is raised to be checked during first request for issuance.				
Conclusion	<p>The validation team has checked generic CPA-DD/02/ as well as the PoA-DD/01/ and the underlying methodology(ies) incl. methodological tools, as far as applicable. It has been confirmed that:</p> <ul style="list-style-type: none"> a) Steps taken and the equations and parameters applied in the generic CPA DD/02/ or PoA-DD/01/ to calculate baseline emissions have been applied in line with the underlying methodology/21/. b) Steps taken and the equations and parameters applied in the PoA-DD/01/ to calculate project emissions have been applied in line with the underlying methodology/21/. 				

	<p>c) Steps taken and the equations and parameters applied in the generic CPA DD/02/ to calculate leakage emissions have been applied in line with the underlying methodology/21/.</p> <p>The emission reduction calculation method is in line with the applied methodology and is found in line with para 375 and 376 of VVS for PoA version 1.0/19/.</p>
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D.2.2.7. Monitoring plan

Means of validation	<p>The monitoring plan in line with the approved monitoring methodology has been clearly defined in the PoA-DD/01/. The details of monitoring and Management system with roles and responsibility are mentioned in section B of PoA-DD/01/. The assessment team has checked the details provided and are in line with the requirement.</p> <p>The monitoring plan in generic CPA-DD/02/ is found consistent with PoA-DD/01/ and is in compliance with the applied methodology. The information provided has allowed the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The relevant points of monitoring plan have been discussed with the CME.</p> <p>It also confirmed that the project participant will be able to implement the monitoring plan as described in the PoA-DD.</p> <p>Monitoring Plan for generic CPA:</p> <p>operational and management structure of the CME in context of the PoA has been clearly described in the PoA-DD and specific case CPA-DD/02/ and confirmed through the interview with CME. The responsibilities and institutional arrangements for data collection and archiving have been clearly provided in the PoA-DD, CPA-DD/02/ and also evident from OSV observation. Furthermore, for this CPA, CME has included monitoring plan and review of the same reveals the fact that the information provided in the PoA-DD and CPA-DD/02/ can provide sufficient information to the CPA implementers of the CPA to stick with the monitoring requirements of the PoA in order to ensure correct monitoring procedure.</p> <p>The validation team has checked the monitoring plan as described in CPA-DD in detail and confirms that:</p> <ol style="list-style-type: none"> 1. The monitoring plan for the CPA is in accordance with the underlying methodologies AMS-II.G. version 8.0/21/. 2. Description of the monitoring plan contains all necessary parameters. Also, they have been described along with the means of monitoring as per the applied methodology 3. The monitoring arrangements described in the monitoring plan are feasible with the project design <p>The monitoring plan in generic CPA-DD/02/ is found consistent with PoA-DD/01/ and is in compliance with the applied methodology. The information provided has allowed the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The relevant points of monitoring plan have been discussed with the CME.</p> <p>It also confirmed that the project participant will be able to implement the monitoring plan as described in the PoA-DD/01/.</p> <p>Sampling Plan:</p> <p>The sampling approach presented in CPA DD/2/ is in concurrence with the Guidelines for sampling and surveys for CDM Project Activities and Programme of Activities" Version 7.0/22/ and appropriate for the type of project activity.</p> <p>As per the AMS-II.G./21/ for biennial monitoring, parameters determined through representative sampling will satisfy the 95 per cent confidence interval and 5 per cent margin of error requirement. For annual sampling the requirements are 90 per cent confidence interval and 10 per cent margin of error. In cases where the 95 or 90 per cent confidence interval and the 5 or 10 per cent margin of error are not achieved, the lower bound of the 95 or 90 per cent confidence interval will be chosen if the representative sampling is not repeated.</p>
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The sample size determination for all the parameters is as per procedures mentioned in "Guidelines for sampling and surveys for CDM Project Activities and Programme of Activities" Version 7.0/22/. The same is also in accordance with the Representative Sampling Methods provided by the methodology AMS-II.G. version 8/21/.

The monitoring arrangements described in the monitoring plan of the PoA-DD/01/ have been assessed by the validation team, by means of documentation review and from interviewing with the representative from the project owner. On that basis the effective implementation of the monitoring plan is considered feasible.

Data and parameters to be monitored by the generic CPA:

Parameter	MoV
Number of project devices of type i and batch j operating in year y , $N_{y,i,j}$ (number)	<p>The CPA implementer (Man and Man Enterprise) keeps an electronic database of all stoves sold. $N_{y,i,j}$ is determined by multiplying all devices sold (N) with the proportion of cooking stoves found to be operating in a representative sample.</p> <p>Sampling will be conducted by applying the 95/10 confidence precision for the sample size calculation (if conducted biennially). The monitoring frequency is at least once in every two years.</p> <p>The Monitoring parameters considered in the project are in line with the requirements of applied methodologies AMS II.G, version 8/21/. Also, the monitoring procedures considered for the parameters are verified to be appropriate and feasible. The monitoring frequency and method is as per the methodology AMS-II.G/21/</p>
Annual quantity of woody biomass used in tonnes per project device of type i , $B_{y,new,KPT,i,j}$ (Tonnes).	<p>The parameter will be determined ex-ante at CPA level (if applicable). Measured as per the KPT protocol, for the initial efficiency determined in the year of its commissioning.</p> <p>Annually monitoring of the quantity of woody biomass used in tonnes per project device of type i and batch j.</p> <p>$B_{new,KPT,i,j}$ is monitored if option 2 of AMS-II.G. is chosen for determining $B_{y,savings,i,j}$.</p> <p>If this parameter is chosen $B_{y=1,new,i,j,survey}$, $SC_{new,i,j}$ and $\eta_{new,i,j}$ shall not be monitored.</p> <p>The monitoring procedure of the parameter is found in line with the requirement of the methodology, hence found accepted.</p>
Quantity of woody biomass used by project devices in tonnes per device of type i , $B_{y=1,new,i,j,survey}$ (Tonnes)	<p>The parameter will be determined ex-ante at CPA level by sample survey of end user or direct measurement at each end user locations.</p> <p>Determined in the first year of the introduction of the devices (e.g. during the first year of the crediting period, $y=1$) through measurement campaigns at representative households and/or sample survey.</p> <p>$B_{y=1,new,i,j,survey}$ is monitored if option 3 of AMS-II.G. is applied for determining $B_{y,savings,i,j}$.</p>

		If this parameter is chosen $B_{new,KPT,i,j}$, $SC_{new,i,j}$ shall not be monitored.
Specific fuel consumption or fuel consumption rate during year y of the device(s) of type i deployed as part of the project that is fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour respectively with the age a , $SC_{new,i,j}$ (t fuel/unit output or t fuel/hour)		<p>The parameter will be determined at CPA level. As per paragraph 21 of AMS-II.G..</p> <p>Controlled Cooking Tests undertaken under this PoA follow the requirements of the "Stove Manufacturers Emissions & Performance Test Protocol" developed with contributions of Colorado State University's Engines & Energy Conversion Lab.</p> <p>Sampling and monitoring is implemented per age class.</p> <p>Monitoring frequency is annually.</p> <p>$SC_{new,y}$ is monitored if option 4 of AMS-II.G. is applied for determining $B_{y,savings,i,j}$.</p> <p>If this parameter is $B_{y=1,new,1,j,survey}$, $B_{new,KPT,i,j}$ and $\eta_{new,i,j}$ shall not be monitored.</p>
Adjustment to account for any continued use of pre-project devices during year y , μ_y (fraction)		<p>Since equation 6 of AMS II.G/21/ is applied, it is a fraction based on monitoring results.</p> <p>During the annual monitoring campaign, CME-mandated field agents inquire if the baseline stove that was supposed to be replaced by the ICS is still used. Field agents estimate the usage rate of the pre-project stove(s) "by formulating questions and/or collecting evidence to determine the frequency of usage of both the project devices and baseline devices. For example if there were 3 pre-project devices per household and it was determined during the survey that use of one of them continues during the crediting period then a conservative adjustment factor of 0.66 is applied for the relevant monitoring period. Another example would be the case where there was only one pre-project device per household and its use during the project period continues along with the project stove to meet 25% of the cooking needs of the household in which case the adjustment factor will be 0.75 as per AMS-II.G..</p> <p>Monitoring should inquire and record ordinary times' consumption (i.e. outside of festival, funeral or anything else out of the ordinary).</p> <p>In case of two subsequent monitoring sessions the efficiency of stoves of an age group is determined at respectively $\mu_{y,1}$ and $\mu_{y,2}$,</p> $\mu_y = \frac{\mu_{y,1} + \mu_{y,2}}{2}$ <p>The monitoring frequency is at least once in every two years.</p> <p>The Monitoring parameters considered in the project are in line with the</p> <p>requirements of applied methodologies AMS II.G, version 8/21/. Also the monitoring procedures considered for the parameters are verified to be appropriate and feasible. The monitoring frequency and method is as per the methodology AMS-II.G/21/</p>
Efficiency of the device of each type i and batch j		<p>Sampling and monitoring will be implemented per batch (age class) to be determined at CPA level. Water Boiling test will be conducted by third party.</p>

	<p>implemented as part of the project activity, $\eta_{\text{new},i,j}$ (fraction)</p>	<p>Recorded frequency is</p> <p>(i) Recorded at the time of commissioning/distribution.</p> <p>(ii) Annual monitoring in case default option c or option d are chosen to adjust for efficiency losses as per paragraph 25 of AMS II.G.</p> <p>The source of data will be Stove Performance test results.</p> <p>The Monitoring parameters considered in the project are in line with the requirements of applied methodologies AMS II.G, version 8/21/. Also, the monitoring procedures considered for the parameters are verified to be appropriate and feasible. The monitoring frequency and method is as per the methodology AMS-II.G/21/.</p>
	<p>Net calorific value of the non-renewable woody biomass, briquettes or charcoal used in project devices, $\text{NCV}_{\text{biomass}}$ (TJ/tonne)</p>	<p>IPCC default for wood fuel, 0.015 TJ/tonne, based on the gross weight of the wood that is 'air-dried' may be used if fuel used in project device is also woody biomass.</p> <p>If fuel used in the project device is charcoal, 0.029 TJ/tonne may be used.</p> <p>If briquette is used as project fuel, NCV shall be measured annually.</p> <p>The assessment team has checked the value from 2006 IPCC Guidelines for National Greenhouse Gas Inventories/17/ and found correct.</p> <p>The Monitoring parameters considered in the project are in line with the requirements of applied methodologies AMS II.G, version 8/21/. Also the monitoring procedures considered for the parameters are verified to be appropriate and feasible. The monitoring frequency and method is as per the methodology AMS-II.G/21/.</p>
	<p>Date of commissioning of batch j (Date)</p>	<p>To establish the date of commissioning, the Project Participant opts to group the devices in "batches" and the latest date of commissioning of a device within the batch shall be used as the date of commissioning for the entire batch.</p> <p>The source will be internal records.</p> <p>Every time an ICS is sold, a sales agreement is filled. The information is entered in the CPA's electronic database afterwards. Based on the database, the date of commissioning is determined, assuming conservative lead times between sale, construction/installation and commissioning.</p> <p>The assessment team has also checked the sample sales agreement and found that it records all required information.</p> <p>The date will be fixed and recorded at the time of commissioning/distribution of the last project device in the batch.</p> <p>The Monitoring parameters considered in the project are in line with the</p>

		<p>requirements of applied methodologies AMS II.G, version 8/21/. Also, the monitoring procedures considered for the parameters are verified to be appropriate and feasible. The monitoring frequency and method is as per the methodology AMS-II.G/21/</p>
	Date of commissioning of project device i (Date)	<p>This date will be the Actual date of commissioning of the project device.</p> <p>Every time an ICS is sold, a sales agreement is filled. The information is entered in the CPA's electronic database afterwards. Based on the database, the date of commissioning is determined, assuming conservative lead times between sale, construction/installation and commissioning.</p> <p>The date will be recorded at the time of commissioning/distribution of project device.</p> <p>The assessment team has also checked the sample sales agreement and found that it records all required information.</p> <p>The Monitoring parameters considered in the project are in line with the</p> <p>requirements of applied methodologies AMS II.G, version 8/21/. Also, the monitoring procedures considered for the parameters are verified to be appropriate and feasible. The monitoring frequency and method is as per the methodology AMS-II.G/21/.</p>
	Number of project devices distributed, N (number)	<p>Every time an ICS is sold, a sale agreement is filled and an electronic database is filled. Based on the information collected into this electronic database, the number of ICSs distributed is determined.</p> <p>The source of data will be internal records.</p> <p>The data will be recorded at the time of commissioning/distribution of project devices.</p> <p>The Monitoring parameters considered in the project are in line with the</p> <p>requirements of applied methodologies AMS II.G, version 8/21/. Also, the monitoring procedures considered for the parameters are verified to be appropriate and feasible. The monitoring frequency and method is as per the methodology AMS-II.G/21/.</p>
	Number of project devices distributed per household, $N_{d,HH}$ (number)	<p>The data will be recorded at the time of commissioning/distribution of project devices.</p> <p>The value considered is 1 and the source of data will be internal records.</p> <p>Only one cooking stove per household is registered in the electronic database. If a household purchases more than one cooking stoves. Adjusted formula in line with methodology will be used in case more than one cook-stove per household is used for calculation of the parameter Bold,i,j.</p> <p>The Monitoring parameters considered in the project are in line with the</p>

		requirements of applied methodologies AMS II.G, version 8/21/. Also, the monitoring procedures considered for the parameters are verified to be appropriate and feasible. The monitoring frequency and method is as per the methodology AMS-II.G/21/
	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass. $f_{NRB,y}$ (fraction):	<p>PP has Established this value prior to project implementation at CPA level. Depending on the approach chosen at CPA-level, UNFCCC website (default country-specific fNRB values, expiring five years from the date of their approval) or FAO and IPCC data (as far as possible) and survey results, national or local statistics or other sources of information (following Methodological tool: Calculation of the fraction of non-renewable biomass).</p> <p>The monitoring frequency will be Yearly, if project proponents opt for annual monitoring instead of fixing the value ex ante at the beginning of each crediting period for each CPA.</p> <p>The validation team has checked the generic CPA-DD/02/ as well as the PoA-DD/01/ and the applied methodology AMS-II.G./21/. Also, the monitoring procedures considered for the parameters are verified to be appropriate and feasible. The monitoring frequency and method is as per the methodology AMS-II.G/21/</p>
Findings	CAR#05 was raised and resolved.	
Conclusion	<p>The validation team confirms;</p> <p>(a) The compliance of the described monitoring plan with the requirements of the applied methodology /21/ including applicable tool(s);</p> <p>(b) The monitoring arrangements described in the monitoring plan of the PoA-DD /01/ are feasible within the PoA design;</p> <p>(c) The project participant will be able to implement the described monitoring plan.</p>	

D.2.3.Crediting period type and duration

Means of validation	<p>Start date of the CPA included will be after the start date of the PoA and after the date of the local stakeholder consultation.</p> <p>The expected operational lifetime of the CPAs is about 21 years.</p> <p>The Renewable crediting period is considered for each CPA.</p> <p>The crediting period is 7 years (84 months), which is renewable twice for all CPAs.</p>
Findings	No findings raised.
Conclusion	By the review of documents and site visit the assessment team confirmed that the start date of the CPA is correctly considered and the start date of the CPAs will be after the start date of CDM PoA which is in line with the para 187 of CDM PS for Programme of Activities version 01.0/30/.

D.2.4. Eligibility criteria for inclusion of CPAs

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
1	Geographical boundary	The CPA takes place within the borders of Ghana. The project boundary was validated by conducting the site visit and it was confirmed by the CME during the onsite interview that the CPA will be distributed within the country of Ghana. The PoA-DD clearly mentioned the project ICS will be distributed within the country of Ghana.	No findings raised.	The assessment team confirms that the proposed CPA complies with the eligibility criteria for the inclusion of CPAs as defined. The details provided in PoA-DD and CPA-DD is found correct and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.
2	Double counting (b & c)	<p>There shall be no double counting of emission reductions, i.e. each cooking stove sold under the CPA are uniquely marked by an ICS serial number (and/or logo) and recorded in an electronic database for PoA lifetime as described in PoA-DD section C.</p> <p>There shall be no double counting of emission reductions, i.e. CPAs shall neither be registered as CDM project activities, included in another registered PoAs, nor the project activities that have been deregistered.</p> <p>There will be unique numbering of each ICS distributed to the household and the same will be also recorded by CME to avoid any double counting. The details are provided in section B of the PoA-DD/01/. The assessment team visited the manufacturing site of ICS to be distributed and it confirms that the unique identity number was imbedded for each stove after QC of the ICS. The ICS shall be uniquely attributed to every stove as per below format:</p> <p style="text-align: center;">CDM.10430.CPA[#].XXXX</p> <p>Where: 10430 = 10430 = Man and Man PoA UNFCCC unique ID CPA[#] = CPA number (e.g. CPA001) XXXX = Unique stove ID (e.g. 1391)</p> <p>The assessment team has also checked the Template of sales</p>	No findings raised.	<p>The assessment team confirms that the proposed CPA complies with the eligibility criteria for the inclusion of CPAs as defined.</p> <p>The ICS shall be uniquely attributed to every stove as per below format:</p> <p style="text-align: center;">CDM.10430.CPA[#].XXX X</p> <p>Where: 10430 = Man and Man PoA UNFCCC unique ID or reference number. CPA[#] = CPA number (e.g. CPA001) XXXX = Unique stove ID (e.g. 1391)</p> <p>The details provided in PoA-DD and CPA-DD is found correct and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.</p>

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
		agreement, in which serial number of ICS that is distributed under the PoA is supposed to be recorded. Contractual agreement/13/ between CPA implementer and CME (including all rights and responsibilities of both parties including implementation of any tests or baseline studies as per AMS II. G. etc. are checked by the assessment team.		
	Technology	<p>Technology- The CPA specifies the level and type of service provided by the technology/measure as well as its performance, which are in line with the technology outlined in PoA-DD. Specifications of the technology/measure shall include the type, capacity, and other key features of the design of the systems.</p> <p>The ICS will be tested as mentioned in the PoA-DD/01/. The assessment team has checked the ICS test/certification/performance report and found that the details as provided are correct. The assessment team has also visited the testing lab and interviewed the lab personnel. It is confirmed during discussion that the testing is done as per the requirement of applied methodology as discussed in PoA-DD.</p>	No findings raised.	<p>The assessment team confirms that the proposed CPA complies with the eligibility criteria for the inclusion of CPAs as defined.</p> <p>The details provided in PoA-DD and CPA-DD is found correct and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.</p>
	Start date	<p>Start date- The start date of the CPA is verifiable through documentary evidence and shall not be prior the start date of the PoA.</p> <p>CPA start date will be after the date of PoA start date which is 26/04/2017. The start date of PoA is checked in line with para 47 of CDM-VVS for PoA version 1.0 and found correct.</p> <p>Document evidence such as order of first sale of ICSs or first sales agreement signed is checked for the CPA included under this PoA at the time of validation. The start date of CPA is found in line with para 186 and 187 of CDM PS for PoA version 1.0.</p>	No findings raised.	<p>The assessment team confirms that the proposed CPA complies with the eligibility criteria for the inclusion of CPAs as defined.</p> <p>The details provided in PoA-DD and CPA-DD is found correct and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.</p>
	Methodology	Methodology- The CPA applies and complies with AMS-II.G., in particular with the follow conditions:	No findings	The assessment team confirms that the proposed CPA complies

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
		<p>2. "energy efficiency improvements in thermal applications of non-renewable biomass."</p> <p>3. "the methodology is applicable to introduction of single pot or multi pot portable or in-situ cook stoves with rated efficiency of at least 20 per cent."</p> <p>5. "non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics"</p> <p>The assessment team has checked and reviewed the PoA-DD and found the details in line with the applied methodology.</p> <p>The following documents are checked to confirm the point 2 and 3 and found correct:</p> <p>1. ICS test/certification/performance report/11/ 2. FAO [e.g http://www.fao.org/forestry/country/32185/en/gha/]</p> <p>The validation team confirms that the requirements of the "Standard for demonstration of additionality, development of eligibility criteria and application of methodology for programme of activities" with respect to the demonstration of additionality are met and PoA is considered as additional.</p>	raised.	<p>with the eligibility criteria for the inclusion of CPAs as defined.</p> <p>The details provided in PoA-DD and CPA-DD is found correct and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.</p>

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
	Additionality	<p>Additionality- The project shall be the distribution (sale) of ICSs to target end-users (households, SMEs or communities) in Ghana, and therefore classifies as an End-use Energy Efficiency Improvement project.</p> <p>The nominal energy savings of each ICS shall be lower than 600 MWh/unit, which is equivalent to 1,800 MWh_{th}/unit</p> <p>The proposed PoA has demonstrated additionality by applying the “Tool for Demonstration of additionality of microscale projects”/32/</p> <p>All the details are supported by relevant and sufficient evidences for demonstrating the appropriateness of the chosen value.</p> <p>The details are provided in section B.1 of this report.</p> <p>The validation team confirms that the requirements of the “Standard for demonstration of additionality, development of eligibility criteria and application of methodology for programme of activities” with respect to the demonstration of additionality are met and PoA is considered as additional.</p>	No findings raised.	<p>The assessment team confirms that the proposed CPA complies with the eligibility criteria for the inclusion of CPAs as defined.</p> <p>The details provided in PoA-DD/01/ and CPA-DD/02/ is found correct and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.</p>
	Other requirements of AMS-II.G. (h)	<p>Other Criteria- Leakages are estimated and accounted for in the CPA-DD.</p> <p>The formula used are found correct and accepted.</p>	No findings raised.	<p>The assessment team confirms that the proposed CPA complies with the eligibility criteria for the inclusion of CPAs as defined.</p> <p>The details provided in PoA-DD/01/ and CPA-DD/02/ is found correct and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.</p>
	Local Stakeholder consultation-	<p>A local stakeholder consultation (LSC) shall be conducted for each CPA. Local stakeholder meeting is conducted for PoA level.</p> <p>The proof of local stakeholder meeting conducted at PoA level has been confirmed from the following documents:</p> <p>a) Invitation letters to stakeholders via hand delivery/news paper</p>	No findings raised.	<p>The assessment team confirms that the proposed CPA complies with the eligibility criteria for the inclusion of CPAs as defined.</p> <p>The details provided in PoA-DD/01/ and CPA-DD/02/ is found correct</p>

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
		publication/14/15/. b) Minutes of stakeholder consultation meeting/16/ c) Photographs of the meeting d) List of stakeholders attending the meeting/16/ Local stakeholder meeting conducted is found in line with the para 51-65 of CDM-PS for PoA version 1.0.		and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
	CME approval	<p>A CPA-DD, related emission reduction calculation as well as all required evidence documents for CDM project eligibility shall be submitted to CME, who needs to formally approve the CPA.</p> <p>Agreement between CME and the CPA implementer/13/ has been checked. LSC report also mentioned the approval process/16/. The assessment team has reviewed the LSC report and found the details are correct.</p>	No findings raised.	<p>The assessment team confirms that the proposed CPA complies with the eligibility criteria for the inclusion of CPAs as defined.</p> <p>The details provided in PoA-DD and CPA-DD is found correct and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.</p>
	ODA	<p>The CPA shall not involve any public funding that diverts Official Development Assistance. The PP has confirmed in PoA-DD/01/. Further, contractual agreement between CPA implementer and CME has been checked by the assessment team to confirm that there is no ODA involved in CPA.</p> <p>Appendix 2 of CPA-DD/02/</p> <p>If public funding is used for any CPA, the relevant Annex I party will confirm that the funding is not a diversion of ODA for that CPA.</p>	No findings raised.	<p>The assessment team confirms that the proposed CPA complies with the eligibility criteria for the inclusion of CPAs as defined.</p> <p>The details provided in PoA-DD/01/ and CPA-DD/02/ is found correct and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.</p>
	Target group	<p>The target group of each CPA shall be households. Alternatively, the target group can be communities or small and medium enterprises;</p> <p>Only one target end-user may be included per CPA.</p> <p>The distribution mechanism is appropriately defined in the PoA DD and it is categorically mentioned that the distribution mechanism. This was further confirmed during the site visit by the validation team by reviewing the data base maintained by the CME. The target group will be communities or small and medium enterprises in urban and peri urban area of the republic of Ghana.</p>	No findings raised.	<p>The assessment team confirms that the proposed CPA complies with the eligibility criteria for the inclusion of CPAs as defined.</p> <p>The details provided in PoA-DD/01/ and CPA-DD/02/ is found correct and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.</p>
	Sampling	<p>The CPA sampling plan complies with the “<i>Standard for sampling and surveys for CDM project activities and programme of activities</i>”.</p> <p>PoA-DD/01/ has been checked and the details are found in line with the “<i>Standard for sampling and surveys for CDM project activities and</i></p>	No findings raised.	<p>The assessment team confirms that the proposed CPA complies with the eligibility criteria for the inclusion of CPAs as defined.</p> <p>The details provided in</p>

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
		programme of activities"/22/. The assessment team has checked and reviewed the sampling approach and found it in line with the requirement. The DOE at the time of inclusion of the CPA shall cross check the sampling to the proposed CPAs of the PoA applying the sampling guidelines.		PoA-DD/01/ and CPA-DD/02/ is found correct and the CPA is found in line with the requirements of CPA inclusion and are in line with para 119-120 of CDM PS for PoA.

SECTION E. Internal quality control

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A draft validation report prepared by validation team is reviewed by an independent technical review team (one or more members) to confirm whether all the internal procedures established and implemented by ESPL were duly complied with and such opinion/conclusion were reached in an objective manner that complies with the applicable CDM rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the validation team.

During the technical review process additional findings may be identified or the closed out findings may be opened, which needs to be satisfactorily resolved before the request for issuance is submitted to UNFCCC. The independent technical reviewer may either approve the report as such or reject/return the same in such case providing the comments/findings/issues that needs to be resolved by the verification team. The decision taken by the Technical Reviewer is final and is authorized by the Managing Director on behalf of Earthood Services Private Limited.

SECTION F. Validation opinion

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Earthood has performed the validation of the PoA titled "Man and Man Enterprise Improved Cooking Stoves CDM Programme in Ghana supported by Republic of Korea". The validation was performed on the basis of rules and requirements defined by UNFCCC for the CDM project activities.

The review of the PoA-DD, CPA-DD, supporting documentation and subsequent follow-up actions (onsite visit and interviews) have provided Earthood sufficient evidence to determine the fulfillment of stated criteria. The proposed PoA meets all relevant UNFCCC requirements for the CDM and correctly applies the baseline and monitoring methodologies AMS-II.G. "Energy efficiency measures in thermal applications of non-renewable biomass" Version 08.0/21/.

The host Party is Ghana, which fulfills the participation criteria and has approved the PoA "Man and Man Enterprise Improved Cooking Stoves CDM Programme in Ghana supported by Republic of Korea" and authorized AERA S.A.S. as the Coordinating Managing Entity. The project correctly applies the approved baseline and monitoring methodologies AMS II – G, version 8.0/21/.

The project activity is a PoA involves dissemination of Improved Cooking Stoves (ICSs) to end-users in Ghana in replacement of traditional cooking stoves using non-renewable wood fuel. The purpose of the PoA and its Component Project Activities (CPAs) is to mitigate climate change and contribute to sustainable development in Ghana.

In baseline scenario, woody biomass (mostly non-renewable) is burnt in traditional cook stoves for cooking and in traditional kilns to generate charcoal. According to the information gathered by Ghana's National Energy Commission (2017)/40/, biomass accounts for 39% of final energy consumption in the country, being a predominant cooking fuel in households and small industries. Ghanaians depend on solid fuels for domestic and commercial use, which has been a pattern over the years and 73% of households use wood fuels for cooking. The assessment team reviewed the documents found above information correct.

In project scenario, the same amount of thermal energy is generated from less amount of woody biomass. By installing improved cook stove, the project results in reductions of CO₂e emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the baseline scenario is equal to current practice and the emission reductions attributable to the project are, hence, additional to any that would occur in the absence of the proposed CDM project activity.

The monitoring plan provides for the monitoring of the PoA's emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the PoA design and Earthood is able to confirm that the PoA participants are able to implement the monitoring plan.

Standard auditing techniques have been used for the validation of the project. The baseline selection, additionality, CER estimation and monitoring plan were assessed by the validation team through desk review, stake holder interview and physical site visit to the project location as per UNFCCC requirements and the required QA/QC procedures were adopted in evaluating the project activity as per VVS/19/ requirements.

Appendix 1. Abbreviations

Abbreviations	Full Texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CME	Coordinating and Managing Entity
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CP	Crediting Period
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EB	Executive Board
EPA	Environment Protection Agency
ER	Emission Reduction
ER	Emission Reduction
ESPL	Earthood Services Private Limited (Earthood)
FAR	Forward Action Request
GHG	Green House Gas
ICS	Improved Cookstove
IPCC	Intergovernmental Panel on Climate Change
IR	Internal Resource
M&M	Man and Man
ODA	Official Development Assistance
PCP	Project Cycle Procedure
PDD	Project Design Document
PFA	Pre-Feasibility Assessment
PMU	Project Management Unit
PoA	Programme of Activities
PP	Project participant
PS	Project Standard
SFR	Stakeholders Feedback Round
UNFCCC	United Nations Framework Convention on Climate Change
VER	Verified Emission Reductions
PO	Partner Organisation
PE	Partner Entrepreneur

Appendix 2.Competence of team member and technical reviewers

Competence Statement			
Name	Amit Ranjan Mandal		
Country	India		
Education	Master of Science (Energy Management)		
Experience	9.5 yrs		
Field	Environmental, Energy, CDM		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	ACM0002, AMS.I.D, AMS.II.G.		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Kumar Gautam	Date	01/03/2018

Competence Statement			
Name	Moses Dada Wealth		
Country	Ghana		
Education	Advanced Diploma (Chemical Engineering)		
Experience	7 years +		
Field	Water Treatment, Oil Storage and Transporting		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	YES (Ghana)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	NO		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Kumar Gautam	Date	01/03/2018

Competence Statement	
Name	Shreya Garg
Country	India

Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., ACM0002, ACM0012		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Gautam	Date	01/03/2018

Competence Statement			
Name	Kaviraj Singh		
Country	India		
Education	Ph.D. (Environmental Engineering), IIT Delhi Masters (Energy & Environmental), DAVV Indore		
Experience	15 Years +		
Field	Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-II.D., ACM0006, AMS-I.A., AMS-I.C., AMS-II.B., AMS-III.H, ACM0002, ACM0001, AM0080		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 13.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Gautam	Date	01/03/2018

Appendix 3. Documents reviewed or referenced

No	Author	Title	References to the document	Provider
1	Man and Man Enterprise	PoA-DD	PoA-DD version 1 dated 23/06/2017. PoA-DD version 1.7 dated 27/07/2018	CME
02	Man and Man Enterprise	CPA-DD	Generic CPA-DD version 1 dated 23/06/2017. Generic CPA-DD version 1.7 dated 27/07/2018	CME
03	Man and Man Enterprise	ERPA between Man & Man enterprises and Eneco Energy Trade BV	ERPA dated 23/05/2013	CME
04	Ministry of Environment, Science, Technology and Innovation, Ghana	Letter of Approval	LoA dated 18/12/2017 from Ghana	CME
05	Man and Man Enterprise	Retailers Charter	-	CME
06	Man and Man Enterprise	List of workers	-	CME
07	Man and Man	First sales agreement	First sales agreement dated 20/10/2017	CME
08	Man and Man Enterprises	Training certificates of employees	Training certificate dated 13/07/2017	CME
09	Environmental Protection Agency	Approval for operation/manufacturing of cookstoves	Letter dated 24/10/2016	CME
10	Man and Man Enterprise	Sales Agreement forms	-	CME
11	Technology Consultancy Centre, KNUST, Kumasi	ICS test reports	ICS Test report	CME
12	Man and Man	Household self-declaration	Letter dated 03/08/2017	CME
13	Man and Man Enterprise	Agreement with CME	Agreement between AERA and Man and Man Enterprises.	CME
14	Man and Man Enterprise	News-paper advertisement for stakeholder meeting	Newspaper advertisement	CME
15	Man and Man Enterprise	LSC meeting invitation letter	Invitation letter for LSC	CME
16	Man and Man Enterprise	LSC attendance sheet and minutes of meeting	Attendance sheet for Local stakeholder meeting	CME
17	IPCC	2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2: http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html	2006	Others
18	Hedon	Hedon Household energy network, http://www.hedon.info/view+stove&itemId	-	Others

		=9305		
19	UNFCCC	Validation and Verification Standard for PoA, version 1.0	-	Others
20	UNFCCC	Project standard for PoA, version 1.0	-	Others
21	UNFCCC	Applied baseline and monitoring methodology: "Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass", AMS II.G version 08	-	Others
22	UNFCCC	Standard for sampling and surveys for CDM Project Activities and Programme of Activities" Version 7.0	Standard for sampling and surveys for CDM Project Activities and Programme of Activities" Version 7.0	Others
23	Man and Man	Prior consideration form submitted to UNFCCC	Prior consideration form dated 25/04/2017	CME
24	UNFCCC	Tool "Demonstration of additionality of small-scale project activities" (Version 11, EB 94))	"Demonstration of additionality of small-scale project activities" (Version 11, EB 94))	Others
25	UNFCCC	Tool "Project and leakage emissions from biomass" (Version 3.0, EB 92)	Project and leakage emissions from biomass" (Version 3.0, EB 92)	Others
26	Ghana Statistical Services	Ghana Living Standard survey Round 6	August 2014	Others
27	CAJ News, Africa	http://cajnewsafrica.com/2017/05/10/gas-price-hike-a-threat-to-ghanas-forests/	-	Others
28	UNFCCC	http://cdm.unfccc.int/DNA/fNRB/index.html	Default value of fNRB	Others
29	UNFCCC	CDM-SSC-PoA-DD-FORM	Version 8.1	Others
30	UNFCCC	CDM PCP for PoA	Version 1.0	Others
31	UNFCCC	http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html	Prior consideration	Others
32	UNFCCC	"Tool for Demonstration of additionality of microscale projects" Version 8.0	Version 8.0	Others
33	AERA Group S.A.S	CDM-MOC-FORM	MoC statement form dated 26/07/2017	Others
34	UNFCCC	"Modalities of Communication statement" (F-CDM-MOC)	Version 3.0	Others
35	UNFCCC	CDM-CPA-DD-FORM	Version 7.0.	Others
36	UNFCCC	CDM-POA-DD-FORM	Version 8.1	
37	Energy Commission of Ghana	Energy Commission of Ghana 2015	Energy Commission of Ghana 2015	Others
38	Ghana	National Energy Statistics	National Energy Statistics 2004-15	Others
39	Ministry of Trade, Industry and Energy	Letter of Approval	LoA dated 02/01/2018 from Republic of Korea	CME
40	Energy Commission of Ghana	Energy Commission of Ghana 2017. http://energycom.gov.gh/files/ENEERGY_STATISTICS_2017_Revised.pdf	Energy Commission of Ghana 2017	Others
41	Republic of France	Passport	Passport copy of Aurélie Lepage and Fabrice La Sache.	CME
42	Republic of Korea	Passport	Passport copy of Rhee Soo Bok, Sang Sun Ha and Ki Deok park.	CME
43	UNFCCC	Guidelines for sampling and surveys for CDM Project Activities and Programme of Activities" Version 4.0	Guidelines for sampling and surveys for CDM Project Activities and Programme of	Others

			Activities" Version 4.0	
44	United States of America	Passport	Juon Michael Choi	CME

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

Table 1. CL from this validation

CL ID	01	Section no.	D.1.8, D.1.9	Date : 05/08/2017
Description of CL				
PP is requested to kindly provide the following list of documents:				
<ol style="list-style-type: none"> 1. Please provide the copy of agreement between the CME & other partners including CDM funding partner & ICS distribution partner. 2. Supportive documents for Technical specifications of ICS. 3. Evidence for start date of PoA. 4. Local stakeholder consultation report (MOM) and invitations letters/ emails etc to the stakeholders 5. Letter of Approval from the host party and other parties involved. 6. Ghana Living Standards Survey (GLSS) in 2014. 7. Declaration/supportive for voluntary participation by host country. 8. Evidence that the end users identified belong to category (i) households; or (ii) small and medium enterprises (SMEs); or (iii) a group of households served by a charcoal market 9. Evidence on the energy savings and thermal capacities of ICS types used 10. samples of agreements to be signed with ICS users, confirming that traditional wood stoves were used for cooking in the baseline situation 11. samples of agreements to be signed with charcoal buyers, shortly describing their business and confirming that they are no large scale industries. 12. Global Alliance for Clean Cooking stoves 2012. 13. Energy Commission of Ghana 2015: National Energy Statistics 2005 – 2014 (Updated). 				
Project participant response				Date : 10/08/2017
<i>Requested documents have been made available to the DOE (during OSV / pending / with this document)</i>				
Documentation provided by project participant				
1.1 CME agreement 1.2 Test reports (2016) 1.3 PCF 1.4 LSC package 1.5 LoA request 1.6 Literature source: http://www.statsghana.gov.gh/docfiles/glss6/GLSS6_Main%20Report.pdf 1.7 Cf. LoA (pending) 1.8 CPA implementer self-declaration 1.9 Cf. 1.2 1.10 Sales agreement template 1.11 not applicable 1.12 https://cleancookstoves.org/binary-data/RESOURCE/file/000/000/162-1.pdf (p. 34-35)				
DOE assessment				Date: 29/08/2017

1. PP has provided the agreement between the CME and the CPA implementer dated 05/08/2017. The assessment team has checked the document and considered to be correct and accepted. The issue is closed.
2. Test report for the year 2016 of ICS is provided by the PP. The assessment team has reviewed the test report for the stoves. However, the technical details as mentioned in the PoA DD is not available in the test report sheet. PP is requested to provide the correct document in supportive of technical details of the ICS. The issue remains open.
3. PP has provided the prior consideration form dated 25/04/2017. The project start date is considered as 26/04/2017 as mentioned in the PoA DD. PP is requested to clarify the inconsistency. The issue remains open.
4. Local stakeholder consultation was conducted on 15/06/2017 by the PP. PP has provided the invitation letter, newspaper advertisement for stakeholder consultation meeting. The assessment team checked the documents and the meeting date as mentioned in PoA DD is consistent with the newspaper advertisement. PP has also provided the stakeholder attendance sheet, feedback form and meeting agenda which are found correct and consistent. Hence, the issue is closed.
5. Letter of Approval is pending from host country. The issue remains open and will be closed on receipt of Host Country Approval letter.
6. PP has provided the Ghana Living Standard Survey (GLSS) 2014. The assessment team has reviewed the report and found the information correct as available in PoA DD. Hence, accepted and closed out.
7. The host country Approval Letter is pending. The issue will be closed on receipt of Host Country Approval letter. The issue remains open.
8. PP has provided a declaration letter dated 03/08/2017 stating that the end users will be households only for CPAs. The assessment team has checked the declaration letter and found it correct and accepted. Hence, the issue is closed.
9. PP has provided the test report for the stove. The details as provided in the PoA DD is not consistent with the test report sheet. PP is requested to clarify the same. The issue remains open.
10. PP has provided the sample of sales agreement. The assessment team has checked the sales agreement sample and considered to be acceptable. Hence the issue is considered to be closed.
11. Since the end users under CPAs are households only, hence the issues is considered to be closed.
12. PP has provided the said document. The information as provided in PoA DD is found consistent with the submitted document, hence accepted and closed out.
13. PP has provided the Energy Commission of Ghana 2015: National Energy Statistics 2005 – 2014 (Updated). The information as provided in PoA DD is found correct and consistent with the submitted document, hence the issue is considered to be closed.

CL 01 remains open.

Project participant response		Date : 21/09/2017
2. pending 2017 test report 3. PCF/start date was taken as per the publicly displayed date of receipt on http://cdm.unfccc.int/Projects/PriorCDM/notifications/index.html 5&7. pending LoA 9. pending 2017 performances average		
Documentation provided by project participant		
DOE assessment		Date: 09/10/2017
2. 2017 test report is pending. The issue remains open. 3. The assessment team has checked the UNFCCC webpage and found that the project start date is date mentioned as date of receipt by UNFCCC. Hence, accepted and closed out. 5 & 7. LoA is pending. The issue remains open. 9. 2017 test report is pending. The issue remains open.		
CL 01 is open.		
Project participant response		Date : 13/11/2017
Updated tests report and LoA have been provided		
Documentation provided by project participant		
2017 test report & LoA		

DOE assessment	Date: 18/07/2018
<p>The LoA from the host country is provided by the PP. The assessment team has checked the LoA and found the details are consistent with the PoA-DD. Hence, accepted and closed out.</p> <p>The test report for the new ICS has been provided by the PP. The assessment team has checked the report and found the details regarding efficiency is consistent with the PoA-DD. Hence, the value assumed in PoA-DD is considered to be correct.</p> <p>CL#01 is open and PP is requested to clarify the following points: There are parameter fixed ex-ante $\eta_{old,i,j}$ and SC_{old} to be determined at CPA level. PP is requested to clarify how the values assumed will be considered correct.</p>	
CME response	Date : 26/07/2018
<i>Parameters and $\eta_{old,i,j}$ and SC_{old} are indeed to be determined and fixed at CPA level</i>	
Documentation provided by CME	
Revised PoA-DD	
DOE assessment	Date: 29/07/2018
<p>The parameters are fixed ex-ante and will be determined at CPA level. This issue of CL#01 is converted to FAR#02 and to be checked by the verifying DOE at the time of first issuance request.</p> <p>Hence, CL#01 is closed.</p>	

Table 2. CAR from this validation

CAR ID	02	Section no.	-	Date : 05/08/2017
Description of CAR				
<ul style="list-style-type: none"> Description on framework of implementation in section A.1 of the PoA DD is not clear to the validation team. Sustainable development section is not in line with the PoA DD guidelines. PP is requested to provide the project location in DMS system. Further the location as shown in decimal range shows location outside Ghana. PP is requested to clarify the same. PP is requested to describe how technology/measures & know how for their use are transferred to the host country in section A.3 of the PoA DD as per the requirement. 				
Project participant response				Date : 10/08/2017
<ul style="list-style-type: none"> <i>The role of CPA implementers in the framework of implementation has been clarified.</i> <i>The section has been shortened and does not exceed 1 page now.</i> <i>Due to the difficulty to capture the GPS of a whole country, a description of the project boundary has been inserted with DMS system coordinates. Furthermore, a clearer version of the map below has been inserted.</i> <i>Section A.3 has been revised to clarify the situation.</i> 				
Documentation provided by project participant				
Revised PoA-DD				
DOE assessment				Date: 29/08/2017
<ul style="list-style-type: none"> PP has revised the PoA and the section is modified. The assessment team has reviewed the revised PoA DD and found that the description of implementation framework is transparently discussed. The assessment team has found the details correct and in line with the requirements. Hence accepted and closed out. The sustainable development section is now corrected and is found in line with the requirement, hence accepted and closed out. The response provided by the PP is considered accepted. The assessment team has checked and reviewed the revised PoA DD and found that the location is now revised and is within the Ghana. The issue is closed out. Section A.3 has been revised by the PP. The assessment team has reviewed the revised PoA DD and found the details correct, hence accepted and closed out. <p>CAR02 is closed.</p>				

CAR ID	03	Section no.	D.1.4	Date : 05/08/2017
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Description of CAR	
PP is requested to elaborate and substantiate the demonstration of the baseline scenario with supportive evidences. The demonstration of additionality is not discussed transparently in the PoA DD. PP is requested to demonstrate additionality in section C of PoA DD with objective evidences.	
Project participant response	Date : 10/08/2017
<i>PP has revised section C as per CAR03 and in accordance of UNFCCC guidance available. Section I.5 has been streamlined to be in line with section C.</i>	
Documentation provided by project participant	
<i>Revised PoA-DD</i>	
DOE assessment	Date: 29/08/2017
PP has revised the description on baseline assessment. The validation team has assessed the description of the baseline identification and found it in line with the requirement of the methodology. Further, the additionality of the PoA is described with supportive evidences. The assessment team has reviewed all supportive documents as submitted and assessed the additionality. The project is found additional and the additionality is found justified in line with the requirement of the methodology. Hence, the issue is closed out satisfactorily. CAR03 is closed.	

CAR ID	04	Section no.	D.1.6	Date : 05/08/2017
Description of CAR				
PP has mentioned in section E.1 that Environmental Analysis is done at PoA level, however PP has not mentioned anything in section E.2 and E.3 of the PoA DD.				
Project participant response				Date : 10/08/2017
<i>In line with template instructions a justification has been provided for not applying the section's requirements (not required by host country). The claim has been supported by EPA during OSV meeting at EPA Sunyani.</i>				
Documentation provided by project participant				
<i>Revised PoA-DD</i>				
DOE assessment				Date: 29/08/2017
PP has revised the PoA DD which is found correct and there is no requirement of Environmental analysis for this type of project in the host country. The fact is also confirmed from the EPA official during onsite visit to the project site. CAR04 is closed.				

CAR ID	05	Section no.	D.2.2.7	Date : 05/08/2017
Description of CAR				
<ol style="list-style-type: none"> 1.The parameter $NCV_{biomass}$ is mentioned under parameter fixed ex-ante which is not in line with the applied methodology AMS-II.G version 08.0. PP is requested to clarify the same. 2.For parameter μ_y, the source of data is not consistent with the applied methodology. 				
Project participant response				Date : 10/08/2017
<i>The parameter table has been moved to section I.7.1 of the PoA-DD and section B.5.1 of CPA-DD. The Number of project devices of type i and batch j operating during year y ($N_{y,i,j}$) has been revised in section B.5.1 of CPA-DD The source of data for μ_y has been revised in accordance with the methodology.</i>				
Documentation provided by project participant				
<i>Revised PoA-DD</i>				
DOE assessment				Date: 29/08/2017

1. The parameter $NCV_{biomass}$ is now available under the monitoring parameter. The assessment team has checked the revised PoA DD and found it in line with the methodology. Hence, the issue is closed.
2. The source of parameter μ_y is now revised in the PoA DD which is found in line with the methodology. However, PP is requested to clarify the following points :
- The value of $B_{old,HH}$ and $B_{old,i,j}$ in CPA DD is not available in the source document.
 - The source document of $\eta_{old,i,j}$ (Hedon (2012)) is not available.
 - The arrival of value of $m_{wood}/m_{charcoal}$ is not clear in the CPA DD.

CAR05 remains open.

Project participant response	Date : 25/09/2017
<ul style="list-style-type: none"> • The source documents for $B_{old,HH}$ and $B_{old,i,j}$ have been revised. • The source document of $\eta_{old,i,j}$ (Hedon (2012)) has been revised. • The relevant paragraph of the methodology has been inserted for $m_{wood}/m_{charcoal}$ value is provided by Methodology §23 	
Documentation provided by project participant	
DOE assessment	Date: 19/12/2017
<ul style="list-style-type: none"> • The source documents for $B_{old,HH}$ and $B_{old,i,j}$ have been revised. • The source document of $\eta_{old,i,j}$ (Hedon (2012)) has been revised. • The relevant paragraph of the methodology has been inserted for $m_{wood}/m_{charcoal}$ value is provided by Methodology §23 <p>The assessment team has checked the revised documents and found it correct. Hence accepted closed out.</p> <p>CAR05 is open in view of TR comments :</p> <ul style="list-style-type: none"> • The approach for the calculation of Bold is not clear in the project documents. • Kindly justify the representativeness of the sampling approach adopted. • Please justify how does the charcoal usage would increase per HH as per formula used in section 1.6.1 of PoA-DD. It is also not clear how many person per HH has been considered. • PP is requested to substantiate if the baseline stoves in the PoA are using charcoal. • PP is requested to clarify If the ICS is a redirected sale, then how will the database be managed. • Kindly justify the representativeness of the sampling procedure when the whole database shall not be maintained. <p>CAR 05 is open.</p>	
Project participant response	Date : 26/12/2017

- The approach for Bold has been clarified in sections I.6.1 and sections I.7.1 of PoA-DD in line with AMS II.G (and para. 44 in particular) to determine $B_{old,i,j}$ ex-ante.
- The sampling approach is considered representative as there is no reason to assume that the population in the sampling frame differs from the population in the target population leading to biased monitoring data. Put differently, there is no reason to assume that ICS users who bought their stove from resellers continue to use their baseline stoves more often or break their ICSs (due to different quality or misuse) more often than ICS users who bought their stove from the distributor directly. Same applies to ICS efficiencies.
As concerns minimum sample size, please see ER calculation and section I.7.2 of PoA-DD.
- The extrapolation for charcoal usage increase has been removed since more recent statistics has been unveiled (http://energycom.gov.gh/files/ENEERGY_STATISTICS_2017_Revised.pdf).

The number of persons per HH should not be considered relevant if a valid source for determining $B_{old,HH}$ is provided (option 2). Official and most recent national statistics for $B_{old,HH}$ have been provided. The option 1 equation on page 20 demonstrates its non-relevance in this context.

- As CDM project standard for programme of activities V.1, para. 139, “the coordinating/managing entity shall describe how to establish the baseline scenario for each of the corresponding CPAs” in the PoA-DD (see section I.5); in this section we conclude “that in the absence of the project activity (baseline scenario) the ICS end-users of the CPA would continue using non-renewable wood fuel in traditional cooking stoves with lower efficiency to meet similar thermal energy needs as those provided by the ICSs. Typically, baseline devices are devices with no improved combustion air supply or flue gas ventilation that is without a grate or a chimney.”
In general terms and in line with methodological provisions, the PoA remains open as concerns the replacement of several baseline devices, which is also substantiated in the determination of baseline stove efficiency $\eta_{old,i,j}$.
Accordingly, we have further substantiated the baseline at CPA 1-level, besides project devices being charcoal ICS for the whole PoA.
- Sales may be direct (through manufacturer and distributor Man & Man) or indirect (through resellers). Database will thus contain information and be managed for direct sales as described in PoA-DD (particularly section I.7.2). For indirect sales, the database will contain information on name and contact of reseller, stove type sold, number of stoves sold, ID numbers of stoves sold, and sales date, which will enable the PP to “maintain a record for the date of commissioning of project devices of each type i and batch j ” as required by AMS-II.G..
- See 2nd bullet response above. Besides, modalities of sales with retailers are strictly consistent with direct sales agreements and adhered to through a compulsory retailer charter which all retailers need to abide by when ordering and retailing batch cookstoves from Man & Man (including the replacement of traditional charcoal stove, limitation to 1 project ICS per household, emission reductions right transfer etc.)

Documentation provided by project participant	
http://energycom.gov.gh/files/ENEERGY_STATISTICS_2017_Revised.pdf	
DOE assessment	Date: 27/12/2017

- The calculation approach of B_{old} is now clarified in the PoA-DD. The assessment team has reviewed the PoA-DD and found it correct and in line with the applied methodology, hence accepted and closed out.
- The sampling approach still not found to fulfill the requirement of sampling as there is no chance that an ICS user picked up for sampling who received the ICS through reseller. The justification is not in line with para 8 of Standard "Sampling and surveys for CDM project activities and programmes of activities". The issue remains open.
- PP has provided the latest reference for charcoal uses. The calculation of B_{old} has now been revised and found in line with the applied methodology. Hence, found correct. However, the source document and the value of B_{old} is not consistent in PoA-DD and CPA-DD.
- The baseline description as provided by PP is found in line with the requirement of the methodology. However, from the above discussion it is not clear how the use of charcoal in baseline stove is substantiated in PoA level.
- It is discussed that the database for resale ICS will also maintained. For indirect sales, the database will contain information on name and contact of reseller, stove type sold, number of stoves sold, ID numbers of stoves sold, and sales date, which will enable the PP to "maintain a record for the date of commissioning of project devices of each type i and batch j" which is found in line with the applied methodology. Hence, accepted and closed out.
- The sampling approach still not found to fulfill the requirement of sampling as there is no chance that an ICS user picked up for sampling who received the ICS through reseller. The justification is not in line with para 8 of Standard "Sampling and surveys for CDM project activities and programmes of activities". The issue remains open.

CAR 05 is open.

Project participant response	Date : 15/01/2018
<ul style="list-style-type: none"> •As per PoA Standard and template instructions a "sampling plan in accordance with the recommended outline for a sampling plan in the "Standard: Sampling and surveys for CDM project activities and programme of activities" " shall be established. Para. 9 of the sampling standard, refers to "a recommended outline of a sampling plan" in the "Guideline: Sampling and surveys for CDM project activities and programme of activities". The PoA-DD and CPA-DD have been revised to clarify that all sales are conditional to signing a sales agreement with each costumer, i.e. contact details of all ICS buyers are supposed to be collected and all ICS will have the same chance to be picked for sampling." • The source (Energy Statistics 2017) has been inserted systematically in the PoA-DD and the CPA-DD. I have changed the version and date of the two documents. • We clarify once more that the programme boundary is whole Ghana (with different cooking fuel consumption patterns across the country). Accordingly, the PoA-DD defines the approach of <u>how</u> the baseline is determined at CPA-level whereas the concrete determination of the baseline (including baseline stove(s) and fuels) takes place <u>at the level of each specific CPA</u>. As a matter of such, we clarify that charcoal is not the only baseline fuel of this PoA-DD, a priori. 	
Documentation provided by project participant	
DOE assessment	Date: 20/01/2018
<p>The justification provided by the PP is found acceptable. The assessment team also checked the sampling approach from the source provided in support of sampling frame and found appropriate. Thus, accepted and closed out.</p> <p>The source of Energy Statistics 2017 is now provided in the documents. The assessment team has reviewed the PoA-DD and CPA-DD and found correct and accepted.</p> <p>PP has confirmed that charcoal is not the only baseline fuel of this PoA-DD and the baseline determination will take place at the level of each CPA. The assessment team reviewed the POA-DD and found it correct and in line with the applied methodology, hence accepted and closed out.</p> <p>CAR#05 is closed.</p>	

CAR ID	06	Section no.	-	Date	05/08/2017
Description of CAR					
PP is requested to confirm that the ICS in CPAs will be distributed only to households as mentioned in PoA-DD.					
Project participant response					Date
A CPA implementer self-declaration is provided with such a confirmation is submitted to the DOE.					10/08/2017
Documentation provided by project participant					
Self-declaration					
DOE assessment					Date
PP has provided a declaration dated 03/08/2017 where it is clearly mentioned that the ICS in CPAs will be distributed to households only. The assessment team has accepted and closed out the issue.					19/12/2017
CAR06 is open in view of TR comments:					
<ul style="list-style-type: none"> It is not clear from the description provided if the PoA is being implemented in the urban areas or rural areas. Man & Man has other registered projects in Ghana; how will be the project ICS be distinguished from the already implemented projects ICS. LoA from Republic of Korea is pending. 					
CAR 06 is open.					
Project participant response					Date
<ul style="list-style-type: none"> As per page 2 of the PoA-DD, "the PoA targets at multiple locations countrywide, with a focus on urban and peri-urban areas with a high-density of inhabitants and increased wood fuel consumption. Urban and peri-urban areas still host around half of the Ghanaian population"; thus it is clearly not aimed at rural implementation. Each ICS will have a unique ID, which will distinguish the project ICS from the already implemented project ICS. Besides, CPA-level geographical perimeter will further ensure distinct implementation. LoA will be turned in, as soon as available. 					26/12/2017
Documentation provided by project participant					
DOE assessment					Date
<ul style="list-style-type: none"> PP has clarified that the PoA focus is in urban and peri-urban areas with a high-density of inhabitants and increased wood fuel consumption. There is no rural areas are considered for the PoA. Hence, the issue is closed. The justification provided by PP is accepted as the location of the PoA is unique and the ICS distributed will have unique ID number which differentiate the project ICS from other ICS. Hence, the issue is closed. The issue will be closed on receipt of requested LoA. 					27/12/2017
CAR 06 is open.					
Project participant response					Date
LoA from Korea is attached					15/01/2018
Documentation provided by project participant					
LoA-Korea					
DOE assessment					Date
					18/07/2018

PP has provided the LoA from Republic of Korea for the PoA. The assessment team has checked the LoA as submitted and found that the approval is for the proposed PoA, hence accepted and closed out.

CAR#06 is open and PP is requested to address the following points:

1. The PoA-DD eligibility criteria (b) states that “each cooking stove sold under the CPA are uniquely marked by an ICS serial number (and/or logo)”. It is also confirmed that the ICS producer (Man and Man Enterprise) has other registered projects in Ghana. The CME/PP shall clearly report how to identify (i) the PoA stoves from other similar PoAs in Ghana and (ii) PoA stoves from different CPAs but located within the same CPA boundary.
2. The annual household woody biomass consumption, Bold,HH (3.57 tons of wood/HH/yr) is based on a survey conducted in 2011 (but published in 2017). PP is requested to clarify how the value of the Bold,HH, based on data from 2011, is relevant and applicable for the PoA.
3. The generic CPA-DD (page 30) indicates that, if a household purchases more than one cook-stove, no emission reductions will be claimed for the additional cook-stoves. However, the methodology (AMS-II.G. ver. 08 para 22) has provided the adjusted formula in case more than one cook-stove per household is used for calculation of the parameter Bold,i,j.
4. The project activity will involve some households to switch from baseline cook-stoves using firewood fuel to efficiency cook-stoves using charcoal fuel. However, no information is provided on how the leakage emissions due to charcoal production will be considered (AMS-II.G. ver. 08 paras 34/35).
5. The efficiency of the replaced devices (PoA-DD, page 21) is calculated as the weighted baseline stove efficiency (i.e. the sum of the products of penetration rate and stove-type efficiency) if more than one type of device is replaced. However, the monitoring methodology (AMS-II.G. ver. 08 parameter Table 17) requires to use the amount of woody biomass consumed by each device as the weighting factor.
6. The PoA has selected option © (AMS-II.G. ver. 08 para 25) to determine the rate of efficiency drop. However, no information is provided in the sampling plan on how the efficiency drop will be determined and taken into account/adjusted in the measured stove efficiency.
7. No information is provided in the generic CPA-DD on how the fNRB for future CPAs will be established

CME response

Date: 26/07/2018

<ol style="list-style-type: none"> Unique ID format has been adopted to avoid any confusion or double-counting with other existing GS PoA (which current area of implementation is distant from the present CDM-CPA), hence UID shall be uniquely attributed to every stove as per following format: CDM.10430.CPA[#].XXXX. Where: 10430 = Man and Man PoA UNFCCC reference number/unique ID CPA[#] = CPA number (e.g. CPA001) XXXX = Unique stove ID (e.g. 1391). (ii) No other CPA within the same boundary (Brong Ahafo region) will be developed in the same PoA, as stated in revised PoA-DD (see revised PoA-DD section B §(d)). PoA-level annual household woody biomass consumption baseline determination has been revised to remove reference to a specific source or date, to be assessed at CPA-level based on most up-to-date literature available confusing statement was corrected with “monitoring surveys of sampled kitchens’ stoves in use will account for any additional project device and be reflected in adjustment factor $N_{d,HH}$” in revised PoA-DD §I.6.1 and monitored parameter table targeted households are urban & peri-urban traditional coal pots owners, whereas firewood consumers are concentrated in poorest rural areas where fire wood is available for free; such households being unlikely to afford charcoal purchase and improved cookstoves. Still, implementation & monitoring surveys will inquire about the replaced cookstove which will allow to determine ex-post the proportion of households that switched from firewood, and apply the default value of 0.030 t_{CH_4}/t to their charcoal consumption thermally equivalent to the baseline fuel consumption $B_{old,HH}$ (as corrected in PoA-DD §I.6.1 on Leakage). AMS-II.G Table 17 requires biomass amount-weighting of the different types of devices being replaced “for each individual household”; yet at CPA population level the penetration rate of each type of baseline device is equivalent to the household-level proportion of biomass consumption by aggregation. Still, PoA-DD was revised to be kept generic as per methodology. Option (c) is one of the elected options at PoA-level, in which case footnote 14 of Project stove efficiency $\eta_{new,i,j}$ determination chapter I.6.1 in PoA-DD mentions that “For the representative sample of batch 1, if the efficiency of a new project device is 30% and at the end of year 1, the efficiency monitored to be 29%; the loss rate is $(30\%-29\%)/1=1\%$. Then this 1% loss rate is to be assumed to be applicable for all the devices in the first batch and subsequent batches for first year of operation”. Moreover, §41 of I.7.2 sampling plan states “<i>Efficiency of devices may be monitored in a common survey with other monitoring parameters; therefore, a random sub-sample within the common survey can be taken for which stove efficiency is tested, as long as the required precision for stove efficiency is achieved.</i>” Yet PoA-DD sampling plan has been edited/clarified (Step 8: Consolidation of monitoring results and footnote 50); the efficiency test sampling approach being unchanged from other options of yearly efficiency determination yet only applied among first batch throughout the years of monitoring. PoA-DD p.20 states that « For the time after, the value may be determined as per equation above in accordance with para. 29-31 of AMS-II.G. or determined as per DNA/CDM Executive Board decision. By default, the value is fixed ex-ante at CPA-level for each crediting period for each CPA under this PoA. Other approaches may be chosen if justified » Yet monitoring parameter table has been clarified as “Depending on the approach chosen at CPA-level, UNFCCC website (default country-specific f_{NRB} values, expiring five years from the date of their approval) or FAO and IPCC data (as far as possible) and survey results, national or local statistics or other sources of information (following Methodological tool: Calculation of the fraction of non-renewable biomass)” 	<p>Documentation provided by CME</p> <p><i>Revised PoA-DD</i></p> <p>DOE assessment Date: 12/08/2018</p>	
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1. PP has revised and PoA-DD and mentioned the unique ID format for the ICS to be distributed under the PoA. The unique ID format is found unique in nature and there is no possibility of double counting of ICS under this PoA. All ICS distribute will adopt the UID format as mentioned in the PoA-DD. The issue is closed.
 2. The annual household woody biomass consumption, $B_{old,HH}$ will be determined at CPA level from the most up-to-date literature available during CPA inclusion. PP has revised the CPA-DD for generic CPA and found correct. The issue is closed.
 3. The generic CPA-DD is revised by the PP/CME. The “monitoring surveys of sampled kitchens’ stoves in use will account for any additional project device and the adjustment factor $N_{d,HH}$ ” will be used as discussed in revised PoA-DD §1.6.1 and monitored parameter table. The issue is closed.
 4. PP has revised the generic CPA-DD and apply the default value of $0.030 t_{CH4}/t$ to their charcoal consumption thermally equivalent to the baseline fuel consumption B_{old} , to account for leakage if any. The issue is closed.
 5. PP has revised the PoA-DD and the efficiency of the replaced devices will be calculated as the weighted baseline stove efficiency (amount of woody biomass consumed by each device as the weighting factor) if more than one type of device is replaced. The issue is found in lin with the methodology and considered closed.
 6. PP has revised the PoA-DD and the sampling details are revised to include the details of loss of efficiency. The assessment team has checked the revised PoA-DD and considered accepted. The issue is closed.
 7. PP has revised the PoA-DD and the details on f_{NRB} is updated. Depending on the approach chosen at CPA-level, UNFCCC website (default country-specific f_{NRB} values, expiring five years from the date of their approval) or FAO and IPCC data (as far as possible) and survey results, national or local statistics or other sources of information (following Methodological tool: Calculation of the fraction of non-renewable biomass)”. The issue is closed.
- CAR#06 is closed.

Table 3.FAR from this validation

FAR ID	01	Section no.	D.1.8	Date: 18/07/2018
Description of FAR				
The local stakeholder consultations will be conducted at CPA-level. The local stakeholder consultation details to be verified during 1st request for issuance for each CPA.				
CME response				Date: 19/07/2018
<i>Noted</i>				
Documentation provided by CME				
<i>CPA1 LSC documentation as described in CPA-DD</i>				
DOE assessment				Date: 29/07/2018
The details of Local stakeholder’s meetings to be checked by verifying DOE at the time of first issuance request.				

FAR ID	02	Section no.	D.2.2.6	Date: 18/07/2018
Description of FAR				
There are parameter fixed ex-ante $\eta_{old,i,j}$ and SC_{old} to be determined at CPA level. to be checked by the verifying DOE at the time of first issuance request.				
CME response				Date: 19/07/2018
<i>Noted</i>				
Documentation provided by CME				
DOE assessment				Date: 29/07/2018

There are parameter fixed ex-ante $\eta_{old,i,j}$ and SC_{old} to be determined at CPA level. The parameters are to be checked by the verifying DOE at the time of first issuance request.

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.0	29 December 2017	Revision to align with the requirements of the “CDM validation and verification standard for programme of activities” (version 01.0).
01.0	4 May 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: programme of activities, validation report		