



**Validation report form for inclusion of component
project activities
(Version 03.0)**

BASIC INFORMATION

Title and UNFCCC reference number of the programme of activities (PoA)	Improved cook stoves and sustainable charcoal initiative (UNFCCC no: PoA10516)	
Version number of the validation report	Version 1.0	
Completion date of the validation report	24 th June 2020	
Version numbers of the PoA-DD to which this report applies	Version 6.0 dated 9 th March 2020	
Title and reference number of each CPAs to be included	CPA Ref. no.	Title
	10516-0001	Improved cook stoves and sustainable charcoal initiative, CPA 1
Applied methodologies and standardized baselines for each CPA	CPA Ref. no.	Applied methodologies and standardized baselines
	10516-0001	AMS-II.G. ver. 10 - Energy efficiency measures in thermal applications of non-renewable biomass
	10516-0001	AMS-III.BG. ver. 3 - Emission reduction through sustainable charcoal production and consumption No standardised baseline applied
Sectoral scopes for each CPA	CPA Ref. no.	Sectoral scopes (indicate mandatory and conditional sectoral scopes)
	10516-0001	Sectoral scope 3: Energy Demand and Sectoral scope 5: Chemical Industries (mandatory sectoral scope) No conditional sectoral scope applicable
Coordinating/managing entity (CME)	Nature Club of Rajasthan	
Host Parties	India	
Estimated amount of annual average greenhouse gas (GHG) emission reductions or GHG removals by sinks in the crediting period (tCO₂e), per CPA	CPA Ref. no.	tCO₂e
	10516-0001	608,055 tCO ₂ e per year
Name and UNFCCC reference number of the DOE	EPIC Sustainability Services Private Limited (E-0062) Report no: ESSPL/CDM/2018/208a	
Name, position and signature of the approver of the validation report	 K.S. Murthy, Managing Director	

SECTION A. Executive summary

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Atmosfair gGmbH (hereinafter referred to as “Atmosfair”) on behalf of Nature Club of Rajasthan has contracted EPIC Sustainability Services Private Limited (hereinafter referred to as EPIC) for validation of the CPA 1 titled “Improved cook stoves and sustainable charcoal initiative, CPA 1” under the registered PoA project titled “Improved cook stoves and sustainable charcoal initiative” (UNFCCC Ref no: PoA10516). Nature Club of Rajasthan is the coordinating/management entity (CME) is responsible for developing and overseeing the PoA whereas atmosfair is the project participant. The validation is on the validation based on the requirements of the Validation and Verification Standard^{/1/} for PoA v2.0, Project Standard^{/1/} for PoA v2.0

The registered PoA contains 3 generic CPAs. This CPA falls under generic CPA no 2 applying AMS.II.G^{/2/} v10.0 and AMS.III.BG^{/2/} v3.0. The CPA contains two components namely efficiency component (type 2) and charcoal component (type 3). The purpose of the proposed CPA1 is to disseminate non-renewable biomass based micro wood gasifier stoves (hereinafter referred to as project cookstoves or improved cookstoves) to the households in West Bengal. It replacing the existing non-renewable biomass based traditional cookstoves (efficiency component). The efficiency of the project cookstove is 28% and that of traditional cookstove is 10% only. By doing so, almost 50% of the biomass is saved. The emission reduction achieved will be directly related to amount of biomass saved from the CPA. The emission reduction will be calculated using the applied methodology AMS.II.G v10.0^{/2/}.

Charcoal is the by-product in the project cookstoves. The sustainable charcoal thus generated from the project cookstove is sold to the charcoal users through charcoal retailers (charcoal component). In the absence of the CPA, traditional charcoal would be used by the charcoal users. The emission reduction achieved will be directly related to amount of charcoal sold to the charcoal users from the CPA. The emission reduction will be calculated using the applied methodology AMS.III.BG v3.0^{/2/}. At the time of onsite visit by the validation team, 43,150 cookstoves were disseminated to the households in West Bengal. CME targeted 30,000 cookstove to be distributed every year.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to the Kyoto Protocol, the CDM rules and modalities as agreed in the Bonn Agreement, the Marrakech Accords and the CDM Executive Board's decisions. The validation team has employed a risk-based approach in the validation based on the recommendations in the Validation and Verification Standard for PoA v2.0 (VVS-PoA^{/1/}), focusing on the identification of significant risks for project implementation and the generation of CERs. The request for inclusion of CPA is based on CPA-DD v3.0.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

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	Interviews	Validation findings
1.	Team Leader	IR	Radhamadha van	Vijayaraghavan	EPIC	√	√	√	√
2.	Technical Expert	E R	A	Kamath	EPIC	√	√	√	√

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	D.	Siddaramu	EPIC
2.	Technical Expert	ER	S	Ranganathan	EPIC
3.	Approver	IR	K. Suryanarayana	Murthy	EPIC

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

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As a first step, the validation team has reviewed the CPA-DD v1.0^{3/} and additional background documents submitted by the CME. Based on the review, the validation team has issued corrective action requests/ clarification requests. As a result of these findings, the PP has revised the CPA-DD v3.0^{3/} (hereinafter referred to as final CPA-DD). The resolution of the findings by the validation is presented in Appendix 4 of this report.

C.2. On-site inspection

Duration of on-site inspection: 13 th February 2020				
No.	Activity performed on-site	Site location	Date	Team member
1.	- General information about the project. - Serious consideration of CDM. - Chronology of Events/ Implementation cycle of the project activity. - Barriers faced/overcome in the processes (additionality) - Local Stakeholder consultation processes - Legal/ Statutory Clearances and Agreements Signed - Baseline determination - Application of appropriate Methodology - Operation and maintenance Procedures - Technical details of project - Data monitoring and storage practices - Calibration and maintenance requirement of the equipment - Monitoring Methodology	Project Site at Kolkata	13 th February 2020	Validation team

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Erdmann	Nele	Senior Project Manager- Atmosfair over phone from Berlin	13 th February 2020	As above	Full team
2.	Banerjee	Moulindu	Sapient Infotech-cookstove assembler	13 th February 2020	As above	Full team

3.	Dutta	Sanjit	Manager - Sapient Infotech-	13 th February 2020	As above	Full team
4.	Singh	Ananda	Kasthury Consultancy –cookstove distributor, charcoal collector	13 th February 2020	As above	Full team
5.	-	Swapna Mal (wife of Basudeb Mal)	Household-cookstove id IN00091 Village-Kamalchak-	13 th February 2020	As above	Full team
6.	-	Rakhi Dhak (w/o of Sadananda Dhak)	Household-cookstove id IN00093 Village-Kamalchak-	13 th February 2020	As above	Full team
7.	-	Piu Dolvi (w/o Dipankar Dolvi)	Household-cookstove id IN00022 Village-Banibon Jagadishpur	13 th February 2020	As above	Full team
8.	-	Sagori Hazra (w/o Jayder Hazra)	Household-cookstove id A34577 Village-Malanchaber ia	13 th February 2020	As above	Full team
9	-	Nabanita Halder (w/o Sukumar Halder)	Household-cookstove id A34550 Village-Malanchaber ia	13 th February 2020	As above	Full team
10	Naskar	Siddhartha	Charcoal collector-Kastury Consultancy	13 th February 2020	As above	Full team
11	-	Chamakau Makhal (Female)	Worker-Cookstove factory-Kasthury consultancy	13 th February 2020	As above	Full team
12	-	Bijoli (Female)	Worker-Cookstove factory-Kasthury consultancy	13 th February 2020	As above	Full team
13	-	Supra Hazra	Local stakeholder-Village-Routevira	13 th February 2020	As above	Full team
14		Rupa Porel	Local stakeholder-Village-Routevira	13 th February 2020	As above	Full team

15		Archana Dolvi	Local stakeholder-Village-Malanchaberi	13 th February 2020	As above	Full team
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C.4. Sampling approach

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There is no sampling approach involved in the validation process. The validation team has visited five households. The validation team has reviewed all the documents available.

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

Areas of validation of compliance (SECTION D)	No. of CL	No. of CAR	No. of FAR
Titles of the CPAs and corresponding generic CPAs	-	-	-
Compliance with CPA-DD form	-	-	-
General description of the CPAs	3 (CL 1, CL 2 and CL 3)	2 (CAR 1 and CAR 5)	2 (FAR 1 & FAR 3)
Application of methodologies and standardized baselines	-	-	-
• Reference to methodologies and standardized baselines	-	-	-
• Project boundary, sources and GHGs	-	-	-
• Baseline scenario	-	-	-
Estimation of emission reductions or net anthropogenic removals	-	-	-
• Equations and parameters applied to calculate GHG emission reductions or net anthropogenic GHG removals	-	-	-
• Data and parameters fixed ex ante	-	-	-
• Ex ante calculation of GHG emission reductions or net anthropogenic GHG removals	-	-	-
• Summary of ex ante estimates of GHG emission reductions or net anthropogenic GHG removals	-	-	-
Monitoring plan	-	-	-
• Data and parameters to be monitored	-	2 (CAR 2 and CAR 4)	-
• Description of the monitoring plan	-	-	-
Start date, crediting period type and duration	-	-	-
Environmental impacts	-	-	-
Local stakeholder consultation	-	1 (CAR 3)	1 (FAR 2)
Eligibility for inclusion	-	-	-
Others (please specify)	-	-	-
Total	3	5	3

SECTION D. Validation findings

D.1. Proposed CPAs and corresponding generic CPAs

CPA title and reference number	Version number of the CPA-DD	Host Party	Generic CPA title, identification/reference number	Version number of the PoA-DD into which the CPA is included
Improved cook stoves and sustainable charcoal initiative, CPA 1 (PoA10516-0001)	Version 3.0 dated 20 th June 2020	India	Improved cook stoves and sustainable charcoal initiative, XXX (generic CPA no 2)	Version 6.0 dated 9 th March 2020

D.2. Compliance with CPA-DD form

Means of validation	As per para 186 and para 243 of VVS-PoA ¹⁷ v2.0, the validation team has checked whether PDD is completed using the valid version of the applicable CPA-DD template and instructions therein is followed by the CPA-DD.
Findings	No CAR/CL/FAR is raised in this section.
Conclusion	The validation team has confirmed the CPA-DD is completed using the valid version of the applicable CPA-DD template ^{14/} (v9.0) and instructions therein is followed by the CPA-DD.

D.3. General description of the CPAs

Means of validation	As per para 186 of VVS-PoA ¹⁷ v2.0, the validation team has checked whether the description of the proposed CPA in the CPA-DD is accurate, complete, and provides an understanding of the proposed CPA.
Findings	3 CLs, 2 CARs and 2 FARs (CL 1, CL 2, CL 3, CAR 1, CAR 5, FAR 1 and FAR 3) were raised in this section.
Conclusion	Refer Appendix 5 and 6 of this report for details.

D.4. Application of methodologies and standardized baselines**D.4.1. Reference to methodologies and standardized baselines**

Means of validation	As per para 193 of VVS-PoA ¹⁷ v2.0, the validation team has checked if CME has steps taken to assess and state its opinion on the applicability of the selected methodologies, the selected standardized baselines and the other applied methodological regulatory documents to the CPA as specified in the corresponding generic CPA.
Findings	No CAR/CL/FAR is raised in this section.
Conclusion	Refer Appendix 5 of this report for details.

D.4.2. Project boundary, sources and GHGs

Means of validation	As per para 194 of VVS-PoA ¹⁷ v2.0, the validation team has checked if CME has taken steps taken to assess and state its opinion on sources and GHGs included in the CPA boundary for the purpose of calculating project emissions and baseline emissions in accordance with the modalities in the corresponding generic CPA.
Findings	No CAR/CL/FAR is raised in this section.
Conclusion	Refer Appendix 6 and 7 of this report for details.

D.4.3. Baseline scenario

Means of validation	As per para 195 of VVS-PoA v2.0, the validation team has checked if the baseline scenario established and described for the proposed CPA in accordance with the modalities in the corresponding generic CPA.
Findings	No CAR/CL/FAR is raised in this section.
Conclusion	Refer Appendix 6 and 7 of this report for details.

D.5. Estimation of emission reductions or net anthropogenic removals**D.5.1. Equations and parameters applied to calculate GHG emission reductions or net anthropogenic GHG removals**

Means of validation	As per para 197a of VVS-PoA ¹⁷ v2.0, the validation team has checked if CME has taken steps to assess the equations and parameters applied to calculate GHG emission reductions or net anthropogenic GHG removals for the CPA in accordance with the modalities in the corresponding generic CPA.
Findings	No CAR/CL/FAR is raised in this section.
Conclusion	Refer Appendix 8 of this report for details.

D.5.2. Data and parameters fixed ex ante

Means of validation	As per para 197b of VVS-PoA ¹⁷ v2.0, the validation team has checked if CME has taken steps to assess the data and parameters fixed ex ante that are used in the equations to calculate GHG emission reductions or net anthropogenic GHG
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	removals for the CPA in accordance with the modalities in the corresponding generic CPA.
Findings	No CAR/CL/FAR is raised in this section.
Conclusion	Refer Appendix 8 of this report for details.

D.5.3. Ex ante calculation of GHG emission reductions or net anthropogenic GHG removals

Means of validation	As per para 197b&d of VVS-PoA ¹⁷ v2.0, the validation team has checked if CME has taken steps to assess the data and parameters fixed ex ante that are used in the equations to calculate GHG emission reductions or net anthropogenic GHG removals for the CPA in accordance with the modalities in the corresponding generic CPA. The validation team has also checked if the ex-ante estimates of baseline, project and leakage GHG emissions as well as GHG emission reductions or net anthropogenic GHG removals, including whether the estimates can be replicated, in accordance with the modalities in the corresponding generic CPA.
Findings	No CAR/CL/FAR is raised in this section.
Conclusion	Refer Appendix 8 of this report for details.

D.5.4. Summary of ex ante estimates of GHG emission reductions or net anthropogenic GHG removals

Means of validation	As per para 197b of VVS-PoA ¹⁷ v2.0, the validation team has checked if CME has taken steps to assess the data and parameters fixed ex ante that are used in the equations to calculate GHG emission reductions or net anthropogenic GHG removals for the CPA in accordance with the modalities in the corresponding generic CPA.
Findings	No CAR/CL/FAR is raised in this section
Conclusion	Refer Appendix 8 of this report for details.

D.6. Monitoring plan

D.6.1. Data and parameters to be monitored

Means of validation	As per para 198 of VVS-PoA ¹⁷ v2.0, the validation team has checked if the coordinating/managing entity chose to delay the submission of the monitoring plan. If so, the the validation team has confirmed that the coordinating/managing entity clearly stated the delay in the CPA-DD. Otherwise, the validation team checked how the data and parameters to be monitored or estimated on implementation that are used in the equations to calculate GHG emission reductions or net anthropogenic GHG removals for the CPA were in accordance with the modalities in the corresponding generic CPA; and How the description of the monitoring plan was in accordance with the modalities in the corresponding generic CPA.
Findings	No CAR/CL/FAR is raised in this section.
Conclusion	Refer Appendix 8 of this report for details.

D.6.2. Description of the monitoring plan

Means of validation	As per para 198 of VVS-PoA ¹⁷ v2.0, the validation team has checked if the coordinating/managing entity chose to delay the submission of the monitoring plan. If so, the the validation team has confirmed that the coordinating/managing entity clearly stated the delay in the CPA-DD. Otherwise, the validation team checked how the data and parameters to be monitored or estimated on implementation that are used in the equations to calculate GHG emission reductions or net anthropogenic GHG removals for the CPA were in accordance with the modalities in the corresponding generic CPA; and How the description of the monitoring plan was in accordance with the modalities in the corresponding generic CPA.
Findings	2 CARs (CAR 2 and CAR 4) were raised in this section.
Conclusion	Refer Appendix 8 of this report for details.

D.7. Start date, crediting period type and duration

Means of validation	As per para 199 of VVS-PoA ¹⁷ v2.0, the validation team has checked if the CME specified the following on the start date and crediting period type and duration of the proposed CPA in accordance with relevant requirements in the “CDM project standard for programmes of activities
Findings	No CAR/CL/FAR is raised in this section.
Conclusion	Refer Appendix 6 and 7 of this report for details.

D.8. Environmental impacts

Means of validation	As per para 203 of VVS-PoA ¹⁷ v2.0, if the CME has chosen to carry out the analysis of environmental impacts at the CPA level, the validation team assessed the analysis and, if considered significant by the coordinating/managing entity or by the host Party, the environment impact assessment in accordance with the applicable requirements in section 7.7 of VVS-PoA v2.0.
Findings	No CAR/CL/FAR is raised in this section.
Conclusion	Refer Appendix 6 and 7 of this report for details.

D.9. Local stakeholder consultation

Means of validation	As per para 204 of VVS-PoA ¹⁷ v2.0, if the CME has chosen to carry out the local stakeholder consultation process at the CPA level, the validation team has assessed whether the local stakeholder consultation process was carried out in accordance with the applicable requirements in section 7.9 of VVS-PoA v2.0.
Findings	One CAR and one FAR (CAR 3 and FAR 3) was raised in this section.
Conclusion	Refer Appendix 6 and 7 of this report for details.

D.10. Eligibility for inclusion

Means of validation	As per para 205 of VVS-PoA ¹⁷ v2.0, the validation team has assessed if the proposed CPA complies with the eligibility criteria for the inclusion of CPAs defined for the corresponding generic CPA.
Findings	No CAR/CL/FAR is raised in this section.
Conclusion	Refer Appendix 6 of this report for details.

SECTION E. Internal quality control

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After the completion of assessment by the validation team all the relevant documentation is submitted to a qualified, Independent Technical reviewer as part of EPIC’ internal quality control system. A Technical reviewer team is appointed to review the draft final validation report (Draft FVR). The comments made by the Technical reviewer team are taken into consideration and incorporated in the final FVR. The technical reviewer team assesses whether all the reporting requirements have been fulfilled and whether all the issues raised were closed satisfactorily by the validation team with justification. The technical review process can also raise issues in this regard which is resolved further by the validation team to the satisfaction of the technical reviewer. The technical reviewer team either accepts or rejects the report made by the validation team. The final report (after resolutions of all findings) is then submitted to the Head-operations for review and approval

SECTION F. Validation opinion

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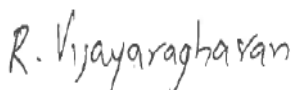
Atmosfair gGmbH (hereinafter referred to as “Atmosfair”) on behalf of Nature Club of Rajasthan has contracted EPIC Sustainability Services Private Limited (hereinafter referred to as EPIC) for validation of the CPA 1 titled “Improved cook stoves and sustainable charcoal initiative, CPA 1” under the registered PoA project titled “Improved cook stoves and sustainable charcoal initiative” (UNFCCC Ref no: PoA10516). Nature Club of Rajasthan is the coordinating/management entity (CME) is responsible for developing and overseeing the PoA whereas atmosfair is the project participant.

CDM-CPA-VAL-FORM

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to the Kyoto Protocol, the CDM rules and modalities as agreed in the Bonn Agreement, the Marrakech Accords and the CDM Executive Board's decisions. The validation team has employed a risk-based approach in the validation based on the recommendations in the Validation and Verification Standard for Programme of Activities version 2.0 (VVS^{1/}), focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation team determined that the proposed CPA complies with the corresponding generic CPA-DD in the latest version of the registered PoA-DD and relevant CDM rules and requirements, the validation team thereby issued a positive validation opinion and include the CPA in the registered CDM PoA in accordance with the "CDM project cycle procedure for programmes of activities" v2.0.

PoA title:	Improved cook stoves and sustainable charcoal initiative (UNFCCC no: PoA10516)
PoA-DD	Version 6.0 , dated 9 th March 2020
CPA title:	Improved cook stoves and sustainable charcoal initiative, CPA 1 (UNFCCC no: 10516-0001) (CPA no 1)
CPA-DD	Version 3.0 dated 20 th June 2020
Sector and applied methodology	Sector 3-Energy Demand AMS-II.G. ver. 10.0 - Energy efficiency measures in thermal applications of non-renewable biomass Sector 5- Chemical Industries AMS-III.BG. ver. 3.0 - Emission reduction through sustainable charcoal production and consumption
Estimated CER	608,055 tCO ₂ e per year

Prepared and submitted by

R. Vijayaraghavan, Lead Auditor

Appendix 1. Abbreviations

Abbreviations	Full Texts
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
ER	External Resources
GHG	Green House Gas
IPCC	Intergovernmental Panel on Climate Change
IR	Internal Resources
MoC	Modalities of Communication
NCV	Net Calorific Value
PCP	Project Cycle Procedure
PDD	Project Design Document
PLC	Private Limited Company
UNFCCC	United Nations Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

The following validation team has been assigned to carry out the validation of the project.

Name	Mr. R. Vijayaraghavan	Kamath. A	Dr. D. Siddaramu & Mr. S. Ranganathan
Role	Lead Auditor	Technical expert	Technical Reviewer
Competence in the TA	Sector 1, 3	Sector 5	Sector 1,3, 5
Responsibility	Doc review, Interview, DVR preparation, DVR resolution, FVR preparation	Interview, onsite findings	Technical review

A brief summary of the personnel involved in the validation is indicated below.

Mr. R. Vijayaraghavan holds BE in Mechanical Engineering, M. Tech in Energy Conservation and Management and MBA in Technology Management. He is certified as Energy Auditor by Bureau of Energy Efficiency (BEE), Government of India. He has 11 years of working experience in energy sector including 6 years as validator. He has successfully completed around hundred CDM, VCS/GS projects. He has been qualified as Lead Auditor for Sectoral Scope 1, 3 and 13.

Mr A. Kamath holds a B. Tech Chemical engineering. He holds a B.Tech chemical engineering Degree. He has more than twenty years of work experience in chemical industries sector. His expertise relates to technical advisory, consulting, erection and commissioning and operational aspects. He is qualified as a sectoral expert for sector 5 related to chemical industries in accordance with procedures of EPIC Sustainability Services Pvt. Ltd.

Dr. D. Siddaramu holds a M.Sc., Ph.D in Environmental Science, with over 16 years of experience. A qualified Clean Development Mechanism (CDM) Lead Auditor, successfully registered more than 30 projects with United Nations Framework Convention on Climate Change (UNFCCC) and Verified Carbon Standard registry (VCS) registry; well versed with both National and International legal regime. Has hands on experience in Environmental Impact Assessment (EIA) studies pertaining to different Ecosystem; monitoring, collection & analyzing environmental samples and conducting socio-economic surveys; data analysis. Conducting CDM/VCS audits, preparation of validation protocols and reports. He is qualified for Sector 1, 3 and 14 based on CDM accreditation requirements and qualified lead auditor as per EPIC accreditation.

Mr. S. Ranganathan, holds a Bachelor's Degree in Chemical Engineering and has done diploma course in Management and completed the graduate ship course in Industrial Engineering and has an overall working experience of around thirty two years with twenty four years" experience in Chemical process industry (fertilizer & petrochemical manufacturing) covering production, technical services including energy audits and efficiency studies, waste heat -recovery, efficiency studies of boilers, vpower plants, safety audits and pollution control activities including waste water treatment, project management, corporate planning, sales, logistics in fertilizer & petrochemical industry. With respect to the thermal power plant the job assignment included the monitoring of flue gas exit temperatures, excess air used efficiency of fuel additives, condition of boiler refractory, insulation of steam lines etc. The experience also includes 5 years in process design & engineering for chemical process industry. He is qualified validator, verifier and technical reviewer and has eight years experience working with leading certification bodies. He is involved in the validation/verification of over 100 projects in various roles. He is a qualified expert for sectoral scope 5 in accordance with procedures of EPIC sustainability services Pvt. Ltd.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	UNFCCC	Validation and Verification Standard for PoA v2.0 https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20181221092105818/Reg_stan06v02.pdf Project Standard for PoA v2.0 https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20181221092036152/Reg_stan03v02.pdf Project cycle procedure for PoA v2.0 https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20181221092012422/PC_proc02v02.pdf	1	Publicly available
2	UNFCCC	AMS.II.G Energy efficiency measures in thermal applications of non-renewable biomass --- v10.0 https://cdm.unfccc.int/methodologies/DB/HLXIKIEIBAXBE4EHO24H5IA/B824MBD8 AMS.III.BG Emission reduction through sustainable charcoal production and consumption --- v3.0 https://cdm.unfccc.int/methodologies/DB/MVOAXD3LGD4ZJEKEERCT/39ZLJ3JZA0 AMS.I.E Switch from non-renewable biomass for thermal applications by the user ---v9.0 https://cdm.unfccc.int/methodologies/DB/IO5FJLJFWT91R6B8SO5BC7/TXSK27I2	2	Publicly available
3	CME	Project Design Document for PoA v6.0 (Registered) https://cdm.unfccc.int/UserManagement/FileStorage/LVE/2TZ78IPSODGXR4UWC93YQB0MK5F CPA1 Design Document v1.0 (initial submission to the DoE) CPA1 Design Document v3.0 dated 20 th June 2020 (Request for inclusion)	3	CME

4	UNFCCC	CPA DD template v9.0 https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20190531085227026/PDD_form13v9.doc	4	Publicly available
5	CME	Sales database template/ Inventory control sheets	5	CME
6	MSME	Ministry of Micro, Small, Medium Enterprises test report ^{/10/} dated 21 st December 2017 (WBT test result)	6	CME
7	CME	Beneficiary agreement with households	7	CME
8	Sapient	Stove Manufacturer (stove assembler) specification for lifetime and stove specification -capacity	8	CME
9	Controller of legal metrology- West Bengal	Calibration certificate for weighing scale	9	CME
10	Ma Tara and Medinapur Chemicals	Contracts of Sapient with charcoal retailers Sale receipt between Charcoal retailers & Charcoal endusers	10	CME
11	Forest Survey of India (FSI)	Forest report dated 2001 for NRB usage since 1951	11	CME
12	UNFCCC	Standard-Applicability of sectoral scopes v1.0 https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20160314113213746/accr_stan03.pdf	12	Publicly available
13	UNFCCC	Glossary: CDM terms v10.0 https://cdm.unfccc.int/UserManagement/FileStorage/R0EBM36GQ81S7TVFCIPHINKA2D4O5ZX	13	Publicly available
14	Ministry of Environment and Forests	Federal Republic of India regulations on requirement of EIA for cookstove projects http://moef.nic.in/legis/eia/so1533.pdf	14	Publicly available
15	UNFCCC	Tool- Demonstration of additionality of small-scale project activities v12.0 https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-21-v12.pdf Tool- Demonstration of additionality of microscale project activities v9.0 https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-19-v9.pdf Tool- Assessment of debundling for small scale project activities v4.0 https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-20-v1.pdf	15	Publicly available
16	CME	LSC report	16	CME
17	CEEW	Council on Energy, Environment and Water (CEEW) document dated November 2018	17	CME
18	CME	Survey report for B _{survey} - based on GS1296 project	18	CME
19	UNFCCC	Standard for sampling and surveys for CDM project activities and programme of activities" version 8.0 https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20191129115244256/Meth_stan05.pdf	19	Publicly available
20	UNFCCC	Calculation of the fraction of non-renewable biomass" v2.0 https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-30-v2.0.pdf	20	Publicly available
21	Forest Survey of India /IPCC	India State of Forest Report dated 2019 2006 IPCC data-Growth rate FAO data	21	CME

22	UNFCCC	Standard for application of the global warming potentials to CDM PA and PoA for the second commitment period of the Kyoto protocol" Version 1.0 (EB 69 Annex 3) https://cdm.unfccc.int/fag/Reference/Standards/meth/regstan02.pdf Decision 4/CMP 7 http://unfccc.int/resource/docs/2011/cmp7/eng/10a01.pdf#page=23 Table 2.14 of the errata to the contribution of Working Group I to the Fourth Assessment Report of the IPCC https://www.ipcc.ch/publications_and_data/ar4/wg1/en/errataserrata-errata.html (Evidence for Global Warming potential for methane)	22	Publicly available
23	Clean Cooking Alliance	Water Boiling Test protocol version 4.2.3 https://www.cleancookingalliance.org/binary-data/DOCUMENT/file/000/000/399-1.pdf	23	Publicly available

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

Table 1. CLs from this validation

CL ID	1	Section no.		Date: 14/02/2020
Description of CL				
Please provide the following documents				
1. The sales database for all the cookstoves (Cookstove id, Location, Name of the user, Date of sale, GPS)				
2. Efficiency test from MSME				
3. Agreement with households (sample visited), first cookstove and latest cookstove.				
4. Lifetime of cookstove				
CME response				Date: 17/02/2020
Required documents provided. For the sales database the database template has been provided. The complete database will be part of the monitoring.				
Documentation provided by CME				
Template sales database ^{/5/} , efficiency test MSME ^{/6/} , Samples sales agreements ^{/7/} , manufacturer specification ^{/8/}				
DOE assessment				Date: 19/02/2020
The validation team has reviewed the above documents and since the documents are authentic and correct, the issue is closed. Refer Appendix 5 to 8 of this report for more details				
CL ID	2	Section no.		Date: 14/02/2020
Description of CL				
Please provide the capacity of cookstove for type 2 (in MWh _{th} per year per cookstove) and type 3 in tCO _{2e} per year per cookstove) with support documents.				
CME response				Date: 17/02/2020
PP included the information in the threshold calculation.				
Documentation provided by CME				
Emission reduction calculation sheet				
DOE assessment				Date: 19/02/2020
The validation team has reviewed the ER sheet and confirmed the same as correct. The issue is closed. Refer Appendix 6 and 7 of this report for more details				
CL ID	3	Section no.		Date: 14/02/2020
Description of CL				
The validation team has understood there are 43,150 cookstoves are distributed so far. Explain how the batches are framed for CPA1.				
CME response				Date: 17/02/2020

All the stoves distributed before the date of CPA inclusion will be batch 1, afterwards the batches will be on monthly level. Based on the project developments it will be every month or every X months. The batches will be defined for the first monitoring.	
Documentation provided by CME	
-	
DOE assessment	Date: 19/02/2020
The validation team has converted the CL into FAR.	

Table 2. CARs from this validation

CAR ID	1	Section No.		Date: 14/02/2020
Description of CAR				
The validation team has checked the household agreements but it is not binding on part of the households that charcoal will be sold to the Sapient Infotech only. Please clarify. Charcoal collected and charcoal sold during a particular week is not same. Please explain the reason.				
CME response				Date: 17/02/2020
Yes the households can decide if they sell the charcoal to the project or if they are using the charcoal for themselves. The collected charcoal is stored, filtered and then sold to the small enterprises. It might be that in one week the collected amount of coal is higher than the amount sold and in another week it is the other way around as the rest of the last week is sold as well. It depends on the demand. In average over a monitoring period the collected amount of coal should be slightly higher than the amount sold, as a small amount of coal is lost during the filtering process. For the calculation of the emission reductions the amount sold to the small enterprises is used.				
Documentation provided by CME				
-				
DOE assessment				Date: 19/02/2020
The validation team has accepted the argument of CME and closed the issue.				

CAR ID	2	Section No.		Date: 14/02/2020
Description of CAR				
Actual error of the weighing scale used to collect the charcoal by the field officer is more than the prescribed level (upto 10kg, d=10 gram;). Pls clarify. Calibration certificate of weigh scale used for measuring amount of charcoal sold				
CME response				Date: 17/02/2020
The DOE checked the small weighting scale of the field assistants collecting the charcoal from the households. Those hundred of weighting scales are controlled but not official calibrated. The charcoal sold to the retailers are weighed by the purchaser using a calibrated weighing scale. Since the ERs are claimed basis quantity of charcoal sold, this weighing scale is the most important one and we have regular calibration reports ^{9/} of this scale which are provided.				
Documentation provided by CME				
Calibration certificate provided.				
DOE assessment				Date: 19/02/2020
Since the ER is based on the charcoal sold and it is weighed using calibrated scale at the common selling point between Kasthury Consultancy (charcoal collector) and charcoal retailers, the validation team has accepted the same.				

CAR ID	3	Section No.		Date: 14/02/2020
Description of CAR				
Input and grievance mechanism is not adequate/robust. Households interviewed does not know carbon credits, complaints procedure.				
CME response				Date: 17/02/2020
All the users visited showed the DOE the name, address & telephone number of the place where the grievance book is kept. It is noted in their diaries or note books. The users do not understand the term "Input & Grievance" mechanism but they refer to it as "For any complaints". The users did not remember what a Carbon Credit was during the auditor's query. But it was explained to them during stove training. They all said that they are aware that they cannot sell or gift the stove and they are also aware that they cede the rights of all benefits drawn out of the project in lieu of getting the stove at a highly subsidized price.				
Documentation provided by CME				
-				
DOE assessment				Date: 19/02/2020
The validation team has accepted the argument of CME. CAR is converted into FAR.				

CAR ID	4	Section No.		Date: 14/02/2020
Description of CAR				
Please explain how the following scenarios are avoided.				
1. Each field officer are given 125 cookstoves at the time for distribution. How two cookstoves handled by different field officers during distribution of cookstoves cannot have the same unique id.				
2. Cookstove ids are punched in the cookstove, mentioned in the household agreement and sales database. How the cookstove id for a particular cookstove, being recorded with different cookstove id in the household agreement & sales database.				
3. There is another project PoA10292 handled by Sapient Infotech and its associated company Kasthuri Consultancy. How cookstoves belongs to PoA10292 does not mix up with PoA10516 or viceversa				
4. There is another project PoA10292 handled by Sapient Infotech and its associated company Kasthuri Consultancy. How charcoal generated from PoA10292 does not mix up with PoA10516 or viceversa during collection, transport, storage, selling to the charcoal retailers.				
CME response				Date: 17/02/2020
1) The stoves are numbered during delivery to the user. We have developed a very robust system. Each FA is given a set of 125 stoves for each consignment. He gets another 125 stoves only when he has submitted the valid Sales Agreements for his previous 125 stoves. Along with the stoves he is given an Inventory Sheet which has pre assigned 125 serials numbers which he has to inscribe on the stove while delivering. The stove IDs are unique and not part of any other inventory sheet. After inscribing a particular number he strikes it off in the sheet so that there is no chance of duplication. These writing instruments are dual power and can be operated even if there is no electricity in the user home. The Sales Agreements are re-checked in the office when the FA submits them to make sure that even in this system he has not made any mistake of duplication. Provided is an example of Inventory Sheets for a set of 500 stoves & also a picture of the writing pen 2) When the cookstove is sold to a household the ID of the cookstove is scratched into the stove and is noted to the sales agreements. Afterwards in the back office the information of the sales agreements including the stove ID will be entered into the database. 3) Each project has its own unique stoves numbers. PoA 10292 has stoves from A 6001 - A 31000. New stoves under this PoA will have another stove ID with another letter in front. PoA 10516 has stoves from A 31001 onwards. There are separate database for each project as well. 4) For charcoal, each PoA has exclusive set of charcoal collectors. They provide daily pick up reports. There is no way that a charcoal FA of PoA 10292 will collect charcoal from a user of PoA 10516. The charcoal collector of PoA 10292 will never have the address or stove number of any user of PoA 10516 and vice-versa. The collected charcoal is stored and sold separately for each project to the retailers, with separate documentation.				
Documentation provided by CME				
Inventory Sheets for a set of 500 stoves, picture of the writing pen				
DOE assessment				Date: 19/02/2020
The validation team has accepted the argument of CME and closed the issue.				

CAR ID	5	Section No.		Date: 14/02/2020
Description of CAR				
Please provide contract of charcoal end users & charcoal retailers, document to support charcoal end users cede rights to claim emission credits from charcoal usage.				
CME response				Date: 17/02/2020
The documents have been provided.				
Documentation provided by CME				
Contracts with Ma Tara Coal and Medinipur Coal provided.				
DOE assessment				Date: 19/02/2020
The validation team has reviewed the contracts with charcoal retailers ^{10/} , sales receipt and accepted. The validation team has reviewed the sales receipts of charcoal retailers and charcoal end-users. CME will demonstrate further that how the retailers fulfill their contracts and assure that the end users are ceding the rights on the carbon credits. The CAR 5 is converted into a FAR.				

Table 3. FARs from this validation

FAR ID	1	Section No.		Date: 19/02/2020
Description of FAR				
The validation team has understood there are 43,150 cookstoves are distributed so far as on today. Explain how the batches are framed for CPA1.				
CME response				Date: 19/02/2020

All the stoves distributed before the date of CPA inclusion will be batch 1, afterwards the batches will be on monthly level. Based on the project developments it will be every month or every X months. The batches will be defined for the first monitoring.	
Documentation provided by CME	
-	
DOE assessment	Date: 19/02/2020
The verifying DoE will check this.	

FAR ID	2	Section No.		Date: 19/02/2020
Description of FAR				
Input and grievance mechanism is not adequate/robust. Households interviewed does not know carbon credits, complaints procedure.				
CME response				Date: 19/02/2020
They all said that they are aware that they cannot sell or gift the stove and they are also aware that they cede the rights of all benefits drawn out of the project in lieu of getting the stove at a highly subsidized price. CME proposed continuous training to the stakeholders during crediting period.				
Documentation provided by CME				
-				
DOE assessment				Date: 19/02/2020
The verifying DoE will check this.				

FAR ID	3	Section No.		Date: 19/02/2020
Description of FAR				
CME will demonstrate further that how the charcoal retailers fulfill their contracts and assure that the end users of charcoal are ceding the rights on the carbon credits. (CAR 5 is converted into FAR.)				
CME response				Date: 19/02/2020
It will be satisfied during verification				
Documentation provided by CME				
-				
DOE assessment				Date: 19/02/2020
The verifying DoE will check this.				

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Appendix 5: Applicable conditions of the applied methodology:

Applicable conditions –AMS.II.G	Validation opinion of how the CPA would comply with the methodology.
2. Scope, applicability, and entry into force 2.1. Scope 2. This methodology comprises efficiency improvements in thermal applications of non-renewable biomass. Examples of applicable technologies and measures include the introduction of high efficiency biomass fired project devices (cookstoves or ovens or dryers) to replace the existing devices and/or energy efficiency improvements in existing biomass fired cookstoves or ovens or dryers. Note: Implementation of Greenfield applications is not covered in this methodology	The CPA contains two components namely efficiency component (type 2) and charcoal component (type 3). The purpose of the proposed CPA1 is to disseminate non-renewable biomass based micro wood gasifier stoves (hereinafter referred to as project cookstoves or improved cookstoves) to the households in West Bengal. It replacing the existing non-renewable biomass based traditional cookstoves (efficiency component). The efficiency of the project cookstove is 28% and that of traditional cookstove is 10% only. By doing so, almost 50% of the biomass is saved. The emission reduction achieved will be directly related to amount of biomass saved from the CPA. The emission reduction will be calculated using the applied methodology AMS.II.G v10.0^[2] (type 2). The emission reduction from charcoal component (type 3) will be calculated using the applied methodology AMS.III.BG v3.0^[2]. At the time of onsite visit by the validation team, 43,150 cookstoves were disseminated to the households in West Bengal.

	Condition is satisfied.
3. In the case of cookstoves, the methodology is applicable to the introduction of single pot or multi pot portable or in-situ cookstoves with rated efficiency of at least 20 per cent. The Water Boiling Test (WBT) method shall be used to test the efficiency of the cookstove to meet this eligibility requirement, following the requirements indicated in "Data / Parameter table 11" which details the options for testing and certification as well as supporting documentation (e.g. certificate issued by third party or test results) that needs to be presented to the validating DOE.	The top-lit updraft gasifier is a micro-kiln used to produce heat for cooking with charcoal as by product. It is introduction of single pot portable one weighing 8 kg only. The validation team has seen the working of the project cookstove during onsite visit. The stove is commonly constructed with two concentric cylindrical containers (referred to as canisters). The inner cylinder is the fuel pot. The fuel pot has holes in the base. These holes are the primary air inlet. The fuel pot also has holes on the neck, serving as a secondary air inlet. The outer cylinder has holes near the bottom on the sides. During combustion, air enters these holes by natural air draft as designed. The end user fills the fuelwood pot up to the neck, just below the secondary air inlet holes. The user ignites the top layer of fuel for the pyrolysis to start. Air then flows in through the primary and secondary air inlets. The primary inlet helps the draft of pyrolysed wood gas flow up. The secondary air inlet blows hot air by the time it travels around the fuel pot. The secondary inlet above the fuel layer helps burn the wood gas. The stove pyrolyzes fuelwood and uses a reburner to eliminate volatile byproducts of pyrolyzation. The validation team has reviewed the Ministry of Micro, Small, Medium Enterprises test report^{/6/} dated 21st December 2017 and observed that efficiency of the project cookstoves is 28%. Hence accepted. Condition is satisfied
2.2. Applicability	
4. The aggregate energy savings of a single project activity shall not exceed the equivalent of 60 GWh per year or 180 GWh thermal per year in fuel input.	At the time of onsite visit by the validation team, 43,150 cookstoves were disseminated to the households in West Bengal. The thermal capacity of each project cookstove is 7.05 kW _{th} per year which is less than threshold limit 1,800 MWh _{th} per year. As the generic CPA consists solely of units that qualify as "microscale CDM units" as defined in Microscale additionality, as per para 46 of AMS.II.G v10.0, the conditions to ensure that CPAs that will be included meet the small-scale or microscale thresholds and remain within those thresholds throughout the crediting period of the CPAs are not required.
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.	The validation team reviewed the state of forest report ^{/11/} dated 2001 and found that non renewable biomass has been used since 1951. Hence accepted. Condition is satisfied.
6. For cases where the biomass is sourced from renewable sources, the project participants should use a corresponding Type I methodology.	The validation team has checked at the onsite that households use non-renewable biomass is used in the project cook stoves distributed. Hence the condition is not applicable.
7. If the project device requires a specific fuel for this device (e.g. briquettes, pellets, woodchips), the consumption of the fuel should be monitored during the crediting period.	The non-renewable biomass consumption is monitored by means of survey in the crediting period. Hence the condition is satisfied.
Applicable conditions –AMS.III.BG v3.0	Validation opinion of how the CPA would comply with the methodology.
2. Scope, applicability, and entry into force	Charcoal is the by-product in the project cookstoves.

2.1. Scope 2. This methodology is applicable to project activities that displace the use of non-renewable biomass in the production of charcoal supplied to identified consumers for thermal applications included in the project boundary.	The sustainable charcoal thus generated from the project cookstove is sold to the charcoal end users through charcoal retailers (charcoal component). In the absence of the CPA, traditional charcoal would be used by the charcoal users. The emission reduction achieved will be directly related to amount of charcoal sold to the charcoal users from the CPA. The emission reduction will be calculated using the applied methodology AMS.III.BG v3.0. Condition is satisfied.
3. This methodology is also applicable to charcoal generated as a by-product in micro-gasifier stoves using woody biomass for households cooking when used in conjunction with "AMS-II.G: Energy efficiency measures in thermal applications of non-renewable biomass". Auxiliary power consumption in a blower or fan for forced convection is not covered by the methodology.	The purpose of the proposed CPA1 is to disseminate non-renewable biomass based micro wood gasifier stoves (hereinafter referred to as project cookstoves or improved cookstoves) to the households in West Bengal. Charcoal is the by product from the project cookstoves. Only natural air will be used for primary and secondary air in the project cookstove. Condition is satisfied.
4. End users of charcoal shall be: (i) households; or (ii) small and medium enterprises (SMEs); or (iii) a group of households served by a charcoal market (e.g. charcoal consuming urban areas). End users do not include large scale industries. Note: Acceptable evidence include, but are not limited to: sales records and receipts of delivery of charcoal products directly to eligible end-users, long-term contracts with an entity (retailer, cooperative, trader etc.) supplying charcoal products to the eligible end-users.	Households sold the sustainable charcoal to the charcoal collectors (Kasthury Consultancy local partner of Sapient Infotech-cookstove assembler in West Bengal). The charcoal collector then sold the charcoal to the charcoal retailers namely Ma Tara and Medinapur Chemical. The charcoal retailers is then sold charcoal to the charcoal endusers like Agarbathi makers, restaurants etc. The validation team has checked the agreements between households and Sapient Infotech^{/7/}, Sapient Infotech and Charcoal retailers^{/10/}, Sale receipt^{/10/} between Charcoal retailers & Charcoal endusers. The validation team has reviewed agreement between households and charcoal retailers where it is written that charcoal would not be sold to large scale industry. Condition is satisfied
5. Measures such as contractual agreements shall be implemented to avoid potential double counting because of potential claims of emission reductions by the end users. These measures shall be described in the Project Design Document (PDD).	Agreements^{/10/} will be signed between CME and households, Charcoal retailers, charcoal endusers. The rights of carbon credit lies with the CME only and not with the charcoal enduser. This is mentioned in the PDD. Condition is satisfied
6. Project activity, except for the case indicated in paragraph 3 above, shall introduce efficient charcoal production technologies using biomass feedstock such as biomass residues to displace the production of charcoal in unimproved traditional kilns by the informal sector thereby leading to emission reductions. Charcoal production facility may include briquetting facility for the agglomeration of smaller biomass particles. Methane produced during charcoaling process is either: (a) captured and destructed or gainfully used for heat or electricity; or (b) not captured and not destructed. Examples of these technologies include but are not limited to: (a) Retort sedentary kilns which capture the pyrolysis gas; captured gas may be gainfully used for example as a fuel for pre-heating the facility or for wood	Not applicable as charcoal is produced in the project cook stoves as a by product. Condition is not applicable.

drying or for production of heat and/or power; (b) Improved sedentary kilns without the capture of pyrolysis gas; (c) Casamance kilns. Note: These kilns emit minimal amount of methane during the charcoaling process i.e. efficient process is employed that will result in high charcoal yield and the small amount of methane that is emitted is captured and used or destroyed.	
7. Project kilns not equipped with capture and destruction of the pyrolysis gases are not eligible to claim emission reductions on account of avoidance of methane emissions from the project activity under this methodology. It is assumed that methane emissions in the project equals to methane emissions in the baseline charcoal generation process.	The validation team has seen the working of the project cookstove during onsite visit. The stove is commonly constructed with two concentric cylindrical containers (referred to as canisters). The inner cylinder is the fuel pot. The fuel pot has holes in the base. These holes are the primary air inlet. The fuel pot also has holes on the neck, serving as a secondary air inlet. The outer cylinder has holes near the bottom on the sides. During combustion, air enters these holes by natural air draft as designed. The end user fills the fuelwood pot up to the neck, just below the secondary air inlet holes. The user ignites the top layer of fuel for the pyrolysis to start. Air then flows in through the primary and secondary air inlets. The primary inlet helps the draft of pyrolysed wood gas flow up. The secondary air inlet blows hot air by the time it travels around the fuel pot. The secondary inlet above the fuel layer helps burn the wood gas. The stove pyrolyzes fuelwood and uses a reburner to eliminate volatile byproducts of pyrolyzation. Since pyrolysis gases are captured in the cook stoves. Condition is satisfied.
8. The project activity shall install and operate new (Greenfield) charcoal production facilities characterized by a new investment; replacement and retrofit of existing facilities is not eligible under this methodology. Provisions of "General guidelines for SSC CDM methodologies" shall be applied to demonstrate that the most plausible baseline scenario is the production of charcoal in unimproved traditional kilns by the informal sector.	The project activity would install and operate new improved cook stoves in the households. Charcoal is the by-product. The validation team has checked one cookstove whose cost of production is Indian Rupee 2,650. As demonstrated in the baseline section of PoA-DD and CPA-DD, baseline scenario is the production of charcoal in unimproved traditional kilns by the informal sector. Condition is satisfied.
9. Charcoal manufacturing equipment transferred from existing or decommissioned charcoal production facilities are not eligible.	Newly manufactured project cook stoves is sold to the households. Hence condition is not applicable.
10. The biomass utilized by the project activity shall not be chemically processed (e.g. esterification to produce biodiesel, degumming and/or neutralization by chemical reagents) prior to the pyrolysis, but it may be processed mechanically (e.g. pressing, filtering, agglomeration) or thermally (e.g. drying, roasting).	Biomass utilized by the project activity is not chemically processed in the project cookstoves. Generally conventional non renewable fuelwood would be used in the project cook stoves distributed.
11. Biomass used by the project facilities is not stored for more than one year. No storage of the biomass is done in anaerobic conditions.	From the onsite visit, the validation team has confirmed that biomass is collected from the nearby village for about the week. People does store the biomass more a week. Biomass is not stored for

	more than one year. Hence accepted.
12. The embedded energy in charcoal produced as by-product in micro-gasifier stoves as indicated in paragraph 3 above shall be neglected when performing water boiling test as per AMS-II.G (see paragraph 17 of AMS-II.G, version 6) to ensure that efficiency estimates are conservative.	The embedded energy in charcoal production is neglected while calculating the thermal efficiency from WBT test.

Appendix 6: Project Standard for PoA v2.0 requirements

Requirements of project Standard for PoA v2.0	Validation opinion of how requirement of each para of Project Standard for PoA is satisfied.
8. Design of component project activities 8.1. Description of component project activity 158. To include a CPA in the registered CDM PoA, the coordinating/managing entity shall develop a CPA-DD that describes the specific design of the CPA	CME has developed CPA-DD v2.0 in which specific design of the CPA is mentioned as follows. The CPA contains two components namely efficiency component (type 2) and charcoal component (type 3). The purpose of the proposed CPA1 is to disseminate non-renewable biomass based micro wood gasifier stoves (hereinafter referred to as project cookstoves or improved cookstoves) to the households in West Bengal. It replacing the existing non-renewable biomass based traditional cookstoves (efficiency component). The efficiency of the project cookstove is 28% and that of traditional cookstove is 10% only. By doing so, almost 50% of the biomass is saved. The emission reduction achieved will be directly related to amount of biomass saved from the CPA. The emission reduction will be calculated using the applied methodology AMS.II.G v10.0. Charcoal is the by-product in the project cookstoves. The sustainable charcoal thus generated from the project cookstove is sold to the charcoal users through charcoal retailers (charcoal component). In the absence of the CPA, traditional charcoal would be used by the charcoal users. The emission reduction achieved will be directly related to amount of charcoal sold to the charcoal users from the CPA. The emission reduction will be calculated using the applied methodology AMS.III.BG v3.0. At the time of onsite visit by the validation team, 43,150 cookstoves were disseminated to the households in West Bengal.
159. When describing the proposed CPA, the coordinating/managing entity shall provide, inter alia, the following information: (a) The title of the CPA;	The validation team has reviewed the final CPA-DD where title of the CPA is mentioned.
(b) The sectoral scopes linked to the methodologies applied and relevant to the CPA;	CPA applied two methodologies AMS.II.G v10.0 (sector 3-Energy Demand) and AMS.III.BG v3.0 (sector 5-Chemical Industries). The validation team has reviewed the Standard-Applicability of sectoral scopes ^{12/} v1.0 and accepted the sectors against the applied methodology is correct.
(c) The purpose and a general description of the CPA;	The validation team has reviewed the final CPA-DD ^{3/} where purpose and general description is mentioned. This matches with the onsite observation by the validation team.
(d) The physical/geographical location of the CPA;	At the time of onsite visit by the validation team, 43,150 cookstoves were disseminated to the households in West Bengal.

(e) The technologies/measures to be employed and/or implemented by the CPA in accordance with the corresponding generic CPA, including: (i) A list of the facilities, systems and equipment that will be installed and/or modified by the CPA; (ii) The types and levels of services (such as the amount of certain type of cement produced or the amount of electricity fed into the electricity grid) provided by the facilities, systems and equipment and their relation, if any, to other facilities, systems and equipment outside the project boundary; (iii) The arrangement of the facilities, systems and equipment; (iv) The age and average lifetime of the equipment based on the manufacturer's specifications and industry standards that are within the range specified in the corresponding generic CPA; (v) The installed capacities, load factors and efficiencies that are within the range specified in the corresponding generic CPA; (vi) The energy and mass flows and balances of the facilities, systems and equipment, if necessary; (vii) The monitoring equipment and their location in the systems	Thermal capacity of the cookstove for type 2 is 7.05 kW_{th} per year, efficiency is 28%, Model used in Champion TLUD. Lifetime is 7 years. The validation team has reviewed the MSME certificate for efficiency^{6/} and accepted.
(f) The technologies/measures existing prior to the implementation of the CPA at the same site, as applicable, including the equivalent information listed in subparagraph (e) above on the facilities, systems and equipment;	Prior to the implementation of the CPA, traditional cookstove was used in the households. Thermal efficiency is 10%.

(g) A short summary of the baseline scenario as established in accordance with section 8.2.3 below, including the equivalent information listed in subparagraph (e) above.	The baseline was pre-defined the applied methodologies. This CPA involves three components namely Type 2 (energy efficiency), type 3 (sustainable charcoal production and consumption). The baselines for each component is validated below. Type 2 component: As per para 21 of AMS.II.G v10.0^[2], 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. The validation team has confirmed that targeted baseline households uses fuelwood using in traditional stoves (efficiency being 10%) without proper combustion air supply, grate or chimney. Hence the baseline therefore forms the consumption of fuel wood using traditional stoves. Since performance of LPG stoves and kerosene stoves are superior to traditional cook stoves, these cannot be part of baseline scenario. Type 3 component: As per para 19 & 20 of AMS.III.BG v3.0^[2], for the charcoal portion produced from non-renewable biomass in the baseline, it is assumed that in the absence of the project activity, the baseline scenario would be the future use of fossil fuels for meeting similar thermal energy needs. For the charcoal portion produced from renewable biomass in the baseline, traditional open-ended methods resulting in methane emitted to the atmosphere forms the baseline scenario. The component aims at replacing conventional charcoal used by different consumers who use conventional charcoal produced from unsustainably harvested fuelwood. Hence forms the baseline. CER will only be claimed for charcoal generated as a by-product in cooking in project cookstove for which ER are also claimed under AMS-II.G. Another element of the baseline scenario of this component consists in methane generation from traditional open-ended charcoal production methods for conventional charcoal replaced by the CPA. As per para 20 and 21 of AMS.III.BG v3.0^[2], methane generation is considered for the portion of charcoal produced from the fraction of biomass deemed renewable only. Hence accepted by the validation team.
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160. Each CPA-DD shall correspond to one of the generic CPA-DDs prepared in accordance with section 7.12 above. If a generic CPA-DD contains more than one technology/measure in accordance with paragraph 79 above, a CPA-DD may correspond to any one of the technologies/measures or their combination covered by the generic CPA-DD	The PoA-DD contains 3 generic CPA. This specific CPA1 corresponds to generic CPA no 2.
161. The coordinating/managing entity shall provide the geographic reference or other means of identification of the proposed CPA, and demonstrate that it is within the geographical boundary of the registered CDM PoA. A CPA shall have only one host Party, which is the Party in which the CPA is located as set out in the CPA-DD	The validation team has reviewed the agreements with households and confirmed that CPA is located in West Bengal, India (only host party).
162. The coordinating/managing entity shall identify CPA implementers referred to in paragraph 72 above, including their names and contact details.	Nature Club of Rajasthan (CME) and Atmosfair (PP) are the two CPA implementers. CPA-DD contains names and contact details.
163. The coordinating/managing entity shall confirm that the proposed CPA is neither registered as a CDM project activity nor included in another registered CDM PoA.	The validation team has reviewed the procedure how a cookstove would be included in a CPA of this PoA10156. The validation team based on the interview with CME, Atmosfair and Sapient understood that when there is a demand for cook stoves from the market or CME wanted to extend the PoA, Nature Club of Rajasthan (the CME), on behalf of Atmosfair would order for the making the cook stoves to Sapient. Generally the CME would get finance support from Atmosfair. Sapient, the stove manufacturer, before making a cookstove would know in which PoA, the cookstove would be included. The stove ids are generated in such a way to easily identify in which PoA it falls under. There is no chance of other PoA stove being included in this PoA or viceversa. While distributing the stove, sale agreement (that contains the stove ids) would be signed between the CME and the beneficiary or stove user. The validation team has observed that CME is responsible for checking the features of potential cook stoves and ensure that each cookstove meets the eligibility criteria before inclusion. CME is using CPA inclusion management system to check if the CPA or stove to be included under the PoA meets the eligibility criteria. The validation team has reviewed latest CME letter ^{14/} dated 11 th December 2019 regarding robust management system adopted by the CME/atmosfair in the CPA inclusion etc. The validation team has reviewed the management system and accepted the same. The procedure for inclusion is similar for PoA10292 (this PoA/CPA located in West Bengal where atmosfair is the PP) as well. Thus the validation team concludes the both PoAs are independent to each other and is mutually exclusive physically.
164. The coordinating/managing entity shall confirm that the proposed CPA is not a project activity that has been deregistered.	This CPA is not a project that has been deregistered.

165. The coordinating/managing entity shall declare, if applicable, the existence of a registered CDM project activity or a CPA under a registered CDM PoA whose crediting period has or has not expired (hereinafter referred to as former project) in the same geographical location as that of the proposed CPA.	For the CME, this is the first project. The validation team confirms the both PoAs (PoA 10516 and PoA 10292) are independent to each other and is mutually exclusive physically.
166. If the coordinating/managing entity identifies that the proposed CPA is in the same geographical location as that of a former project, it shall declare that the proposed CPA will not lead to the discontinuation or modification of the former project and does not decrease the GHG emission reductions or net anthropogenic GHG removals by the former project, and that the proposed CPA complies with the following conditions: (a) It utilizes both a different measure and a different technology from those of the former project; (b) It does not share or utilize any of the assets of the former project; (c) It utilizes a different resource type compared to the former project	This is not applicable as both the PoA are independent to each other and is physically exclusive.
167. The following definitions shall apply for paragraph 166 above: (a) Measure: fuel/feedstock switch, technology switch, methane destruction and methane avoidance; (b) Technology: equipment or conversion process used for the production of goods or provision of services. Two different project activities/CPAs are considered to be using the same technology(ies) if they: (i) Provide the same kind of output and use the same kind of equipment and conversion process; or (ii) Undertake the same course of action that results in the same kind of effect (e.g. two projects using the same management practice such as fuel switching); (c) Assets: resources with economic value that an individual, corporation or country owns or controls with the expectation that it will provide future benefit; the assets could be physical such as project equipment, or non-corporeal such as permits and exclusive position in legislation. The definition of assets in this context excludes land; (d) Output: the amount of goods or services produced by a technology; (e) Resource: A source of supply or support needed for the production of an output. It may include categories of goods, energy and energy carriers that are supplied into the project location and are required for the implementation of the project activity/CPA, such as fossil fuel, by-product of a process, biomass, solar, wind, or geothermal heat.	Both PoAs are using same measure (technology switch), same technology (microgasifier cook stoves), provide same kind of output (thermal output, charcoal is the by-product). But both the PoAs (PoA 10516 and PoA 10292) are independent to each other and is physically exclusive.

168. If the proposed CPA involves the implementation of distributed units in households and the conditions referred to in paragraphs 166(a)–(c) above are not met, the coordinating/managing entity shall request a DOE to validate and confirm by other means that the proposed CPA will not lead to the discontinuation or modification of the former project, and does not decrease the GHG emission reductions or net anthropogenic GHG removals by the former project, in accordance with the “CDM validation and verification standard for programmes of activities”.	Both the PoAs (PoA 10516 and PoA 10292) are independent to each other and is physically exclusive. So in no way, PoA10516 does not lead to discontinuation PoA10292 or vice-versa.
169. In all other cases, the coordinating/managing entity may submit a communication to the Board to request clarification in accordance with the “Procedure: Direct communication with stakeholders”, prior to the inclusion of the proposed CPA in the registered PoA.	This is not relevant as PoA satisfies the requirement of para 168 above.
170. The coordinating/managing entity shall provide information on sources of public funding for the proposed CPA. If public funding from Annex I Parties is involved, the coordinating/managing entity shall provide an affirmation obtained from the Annex I Parties that such funding does not result in a diversion of official development assistance, and is separate from and not counted towards the financial obligations of those Parties.	CME confirmed in the PoA-DD that the PoA has not received public funding from Annex I parties that could result in a diversion of official development assistance. CME/PP is funding for the implementation of the PoA. Hence no public funding would be used.
8.2. Application of methodologies and standardized baselines 8.2.1. Reference of methodologies and standardized baselines 171. The coordinating/managing entity shall provide the references (titles, versions and UNFCCC reference numbers) of the selected methodologies and, where applicable, of the selected standardized baselines that are applied to the proposed CPA, including any other methodologies or methodological tools to which the selected methodologies refer, in accordance with the corresponding generic CPA.	The validation team has reviewed the CPA-DD^{13/} and confirmed the title, version and UNFCCC reference numbers of the applied methodologies.
8.2.2. Project boundary, sources and greenhouse gases 172. The coordinating/managing entity shall describe the project boundary of the proposed CPA, including the physical delineation of the CPA, and which sources and GHGs are included in the project boundary in accordance with the modalities in the corresponding generic CPA.	The validated team has reviewed the final CPA-DD^{13/} under relevant section project boundary and accepted the source and sink of the CPA. Scenario mentioned in the relevant sections (under project boundary section and baseline section for the CPA) is consistent.

8.2.3. Baseline scenario 173. The coordinating/managing entity shall establish and describe the baseline scenario for the proposed CPA in accordance with the modalities in the corresponding generic CPA.	This CPA involves two components namely Type 2 (energy efficiency), type 3 (sustainable charcoal production and consumption). The baselines for each component is validated below. Type 2 component: As per para 21 of AMS.II.G v10.0^{/3/}, 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. The validation team has confirmed that targeted baseline households uses fuelwood using in traditional stoves (efficiency being 10%) without proper combustion air supply, grate or chimney. Hence the baseline therefore forms the consumption of fuel wood using traditional stoves. Since performance of LPG stoves and kerosene stoves are superior to traditional cook stoves, these cannot be part of baseline scenario. Type 3 component: As per para 19 & 20 of AMS.III.BG v3.0^{/3/}, for the charcoal portion produced from non-renewable biomass in the baseline, it is assumed that in the absence of the project activity, the baseline scenario would be the future use of fossil fuels for meeting similar thermal energy needs. For the charcoal portion produced from renewable biomass in the baseline, traditional open-ended methods resulting in methane emitted to the atmosphere forms the baseline scenario. The component aims at replacing conventional charcoal used by different consumers who use conventional charcoal produced from unsustainably harvested fuelwood. Hence forms the baseline. CER will only be claimed for charcoal generated as a by-product in cooking in project cookstove for which ER are also claimed under AMS-II.G. Another element of the baseline scenario of this component consists in methane generation from traditional open-ended charcoal production methods for conventional charcoal replaced by the CPA. As per para 20 and 21 of AMS.III.BG v3.0^{/3/}, methane generation is considered for the portion of charcoal produced from the fraction of biomass deemed renewable only. Hence accepted by the validation team.
174. The coordinating/managing entity shall provide information on the facilities, systems and equipment to be operated under the proposed CPA and in the baseline scenario, and clearly explain how the same types and levels of services provided by the CPA would have been provided in the baseline scenario	It is validated as above.

175. In case of replacement of existing equipment, the coordinating/managing entity shall estimate the point in time when the existing equipment would be replaced in the absence of the proposed CPA in accordance with the "Tool to determine the remaining lifetime of equipment".	Since the project is distribution of cook stoves in the households, remaining lifetime of existing traditional cook stoves can be disregarded. This is in line with para 196 of PS-PoA v2.0.
8.2.4. Estimation of emission reductions or net anthropogenic removals 176. The coordinating/managing entity shall describe how to undertake the ex post calculation of baseline, project and leakage GHG emissions by sources, or baseline and actual net GHG removals by sinks, as well as GHG emission reductions or net anthropogenic GHG removals, to be achieved by the proposed CPA, and provide the ex ante calculation of them for each year of the crediting period in accordance with the modalities in the corresponding generic CPA. The coordinating/managing entity shall describe all steps to be undertaken for these calculations and provide all results.	The validation team has reviewed the CPA-DD where baseline, project and leakage emission calculation is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.
177. The coordinating/managing entity shall, in accordance with the the modalities in the corresponding generic CPA, provide the data and parameters that will not be monitored but are determined before the inclusion of the CPA and remain fixed throughout the crediting period. These data and parameters shall be available at the time of the validation for inclusion of the CPA.	The validation team has reviewed the CPA-DD where baseline, project and leakage emission calculation is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.
178. The coordinating/managing entity shall ensure that the application of default data in the estimation of GHG emission reductions or net anthropogenic GHG removals for the proposed CPA is in accordance with the modalities in the corresponding generic CPA.	The validation team has reviewed the CPA-DD where baseline, project and leakage emission calculation is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.
8.2.5. Monitoring plan 179. The coordinating/managing entity shall develop and describe the monitoring plan for the proposed CPA in accordance with the modalities in the corresponding generic CPA.	The validation team has reviewed the CPA-DD where monitoring plan is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.
180. The coordinating/managing entity may choose to make a delayed submission of the monitoring plan, that is, after the inclusion of the CPA in the registered CDM PoA and: (a) At any time prior to the submission of the request for issuance of CERs that covers the first monitoring period of the CPA; or (b) Together with the request for issuance of CERs that covers the first monitoring period of the CPA.	CME did not opt for any delay.
181. If the coordinating/managing entity chooses to make a delayed submission of the monitoring plan in accordance with paragraph 180 above, it shall clearly state that the submission of the monitoring plan is delayed and that the CPA-DD submitted for inclusion of the CPA in the registered CDM PoA does not contain information related to the monitoring plan.	CME did not opt for any delay.
182. The monitoring plan shall include all data, parameters and related information in accordance with the modalities in the corresponding generic CPA.	The validation team has reviewed the CPA-DD where monitoring plan is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.

183. The monitoring plan shall also include the other elements referred to in paragraph 119 above in accordance with the modalities in the corresponding generic CPA.	The validation team has reviewed the CPA-DD where monitoring plan is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.
8.3. Start date, crediting period type and duration 184. The coordinating/managing entity shall determine the start date of the proposed CPA and provide a description of how the start date has been determined in accordance with the definition of start date in the "Glossary: CDM terms".	As per Glossary: CDM terms ^{/13/} v10.0, start date of a CPA is the date of provision of the service such as distribution of cookstove. The starting date is 10 th September 2018, with the sale of the first cookstove (serial no A31001). The validation team has reviewed the agreement with household and accepted the same.
185. The coordinating/managing entity shall confirm that the start date of the proposed CPA is on or after the start date of the registered CDM PoA.	Start date of the PoA was 7 th June 2018. Start date of the CPA is 10 th September 2018. Hence accepted.
186. The coordinating/managing entity shall specify the expected operational lifetime of the proposed CPA.	The validation team has reviewed the lifetime certificate ^{/8/} from Sapient infotech-Cookstove assembler. The lifetime is 7 years.
187. The coordinating/managing entity shall indicate the type (renewable or fixed) and the duration of the crediting period of the proposed CPA as specified in the corresponding generic CPA.	CPA has renewable crediting period of 7 years.
188. The coordinating/managing entity shall determine the start date of the crediting period of the proposed CPA, which shall be on or after the date of inclusion of the CPA in the registered CDM PoA.	Crediting period will start from the date of inclusion of this CPA.
189. The coordinating/managing entity shall determine only one start date for the crediting period of the proposed CPA, even in cases of phased implementation of the CPA.	Crediting period will start from the date of inclusion of this CPA.
190. The coordinating/managing entity shall state the start date of the crediting period of the proposed CPA in the format dd/mm/yyyy, and shall not attach any qualifications to the start date, such as "expected".	Crediting period will start from the date of inclusion of this CPA.
191. A CPA included in a registered CDM PoA may not be re-included in the same or different PoA, or registered as a CDM project activity after the expiry of its final crediting period.	The CPA will not be re-included in the same or different PoA nor registered as a CDM project activity after the expiry of its final crediting period.
8.4. Environmental impacts 192. If the coordinating/managing entity chose to carry out an analysis of the environmental impacts of the CDM PoA at the CPA level, it shall comply with the requirements in paragraphs 45 and 46 above mutatis mutandis.	Demonstration of whether EIA is required or not for the project is conducted at PoA level. However, the validation team has reviewed the Schedule 1 of the EIA notification ^{/14/} 2006, given by the Ministry of Environment and Forests under the Environment (Protection) Act 1986. As per this notification, the PoA doesn't fall under the list of activities requiring EIA. The validation team concludes that the environmental impact by the project activity need not be assessed by the PP/CME. The project activity does not cause adverse environmental impacts and there are no regulations in the host country, India to conduct the EIA for the project activity. The same is confirmed from the EIA notification 2006. (http://moef.nic.in/legis/eia/so1533.pdf).
8.5. Local stakeholder consultation 193. If the coordinating/managing entity chose to carry out the local stakeholder consultation on the CDM PoA at the CPA level, it shall comply with the requirements in section 7.8 above mutatis mutandis.	LSC conducted at CPA level. The validation opinion of the requirements of section 7.8 is detailed at the end this Appendix.

8.6. Eligibility for inclusion 194. The coordinating/managing entity shall demonstrate how the proposed CPA meets the eligibility criteria for inclusion as defined in the corresponding generic CPA.	The validation opinion of the requirements of eligibility criteria is detailed at the end this Appendix.			
8.7. Specific design requirements for small-scale component project activities 195. The coordinating/managing entity shall demonstrate that the proposed small-scale CPA is not a debundled component of a large-scale project activity or CPA in accordance with the applicable provisions in the “Methodological tool: Assessment of debundling for SSC project activities”.	The validation team has observed the following.			
	Type	Threshold unit size of each cook stove for being additional as prescribed in Appendix of small scale additionality tool v12.0 ^{/15/}	Unit size of project cookstove	
	Type 2	600 MWh _e per year or 1800 MWh _{th} per year and end users are households/ communities/ SMEs	7.05 kWh _{th} per project cookstove per year. End user is households	
	Type 3	600 tCO ₂ e per year and end users are households/ communities/ SMEs	1.77 tCO ₂ e per project cookstove per year. End user is SME	
	Since each of the units contained in the CPA satisfies the condition to qualify as a ‘microscale CDM unit’, then validation team has accepted that CME is not required to demonstrate compliance of the CPA with the microscale or small-scale thresholds at the aggregate level of the CPA and the requirements related to debundling stated in paragraph 6 of Microscale additionality tool v9.0^{/15/} do not apply.			
	The validation team has also observed the following.			
	Type	Small scale thresholds as defined PS-PoAv2.0	1% of Small scale thresholds	Unit size of project cookstove
	Type II	60 GWh per year or 180 GWh _{th} per year	1800 MW _{th} per year	7.05 kWh _{th} per year.
	Type III	60 ktCO ₂ e per year	600 tCO ₂ e	1.77 tCO ₂ e per year.
	Since each of the independent cook stoves included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the methodology/types applied, CPA of PoA is exempted from performing de-bundling check i.e., considering as not being a de-bundled component of a large scale activity. This is in line with para 17 of Debundling tool^{/15/} v4.0.			
196. Concerning the requirement in paragraph 175 above, for household devices/appliances to be used in the proposed small-scale CPA, the coordinating/managing entity may disregard the remaining lifetime.	Since the project is distribution of cook stoves in the households, remaining lifetime of existing traditional cook stoves can be disregarded. This is in line with para 196 of PS-PoA v2.0.			

197. If the coordinating/managing entity chose to carry out an analysis of the environmental impacts of the CDM PoA at the CPA level, it shall comply with the requirements of paragraph 47 above mutatis mutandis.	Demonstration of whether EIA is required or not for the project is conducted at PoA level. However, the validation team has reviewed the Schedule 1 of the EIA notification^{/14/} 2006, given by the Ministry of Environment and Forests under the Environment (Protection) Act 1986. As per this notification, the PoA doesn't fall under the list of activities requiring EIA. The validation team concludes that the environmental impact by the project activity need not be assessed by the PP/CME. The project activity does not cause adverse environmental impacts and there are no regulations in the host country, India to conduct the EIA for the project activity. The same is confirmed from the EIA notification 2006. (http://moef.nic.in/legis/eia/so1533.pdf).
8.10. Validation for inclusion of component project activities 219. A CPA may be included in a registered CDM PoA at any time during the duration of the PoA provided that the requirements in paragraph 220 below are met.	As per the CDM website, PoA duration is 7th June 2018 to 6th June 2046. This CPA is being included in this period, this is accepted.
220. To include a CPA in a registered CDM PoA, the coordinating/managing entity shall ensure that the proposed CPA complies with the corresponding generic CPA in the latest version of the registered PoA-DD, including the eligibility criteria for inclusion of CPAs in the PoA, and relevant CDM rules and requirements.	This CPA conforms to generic CPA no 2 of the PoA-DD. The validation opinion of eligibility criteria is detailed below.
221. The coordinating/managing entity or the project participants shall select a DOE, accredited for the validation function and in the sectoral scopes linked to the applied methodologies and relevant to the registered CDP PoA, for validation of the proposed CPA for inclusion in the PoA. The coordinating/managing entity or the project participants shall have a contractual arrangement with the DOE for the validation.	As per this link https://cdm.unfccc.int/DOE/list/index.html, EPIC is accredited for applicable sectors 3 and 5. EPIC is signed an agreement for conducting the scope of CPA inclusion with atmosfair, the PP.
222. The coordinating/managing entity shall submit the completed CPA-DD, together with supporting documentation, to the selected DOE for validation.	CME has submitted the final PDD^{/3/} to the validation team for validation.
223. If the registered CDM PoA indicates in the generic CPA-DD that the corresponding CPAs are deemed automatically additional in accordance with the "Methodological tool: Demonstration of additionality of microscale project activities" and if the CPA inclusion template was registered with the PoA-DD, the coordinating/managing entity may directly include CPAs in the PoA without validation by a DOE in accordance with the "CDM project cycle procedure for programmes of activities". If any CPA included by the coordinating/managing entity is found to have been erroneously included in the PoA, the coordinating/managing entity may no longer directly include CPAs in the PoA, but shall request a DOE to validate and include them.	CME did not opt for this provision.

7.8. Local stakeholder consultation 7.8.1. General requirements 51. The coordinating/managing entity shall invite local stakeholders to provide comments on the proposed CDM PoA and shall demonstrate how due steps/actions were taken to appropriately engage stakeholders and solicit comments in accordance with this section. A local stakeholder consultation shall be carried out for the whole PoA or at the CPA level. The coordinating/managing entity shall specify the level of consultation applied.	As per PoA-DD and CPA-DD^{12/}, it would be demonstrated at the CPA level. The validation team has reviewed the LSC report^{16/} for the CPA1. The project is being developed in Gold Standard as well. CME has sent public notice to identified local stakeholders on 30th July 2018 and 31st July 2018. Invitations were mainly distributed per invitation e-mail which is the common way of informing about meetings in India. Self Help Groups, stove users and factory workers who might not have access to e-mail have been invited by letter, phone calls or personally. Gold Standard local experts and supporter NGOs were invited through E-mail according to GS's requirement. Additionally the meeting was announced by hanging posters on public sites and by car announcement by Sapient driving around and announcing the meeting. Through such public announcements a broad range of stakeholders could be reached, regardless of gender age and ethnicity or level of education.
7.8.2. Scope of local stakeholder consultation 52. The scope of the local stakeholder consultation shall comprise, as a minimum, the potential direct positive and negative impacts that the proposed CDM PoA may have.	The validation team has reviewed the LSC report^{16/} and all the positive and negative impacts are detailed to the stakeholders. Hence accepted.
53. The coordinating/managing entity shall conduct the local stakeholder consultation in accordance with applicable host Party rules, if any. Where host Party rules on local stakeholder consultation are applicable, the coordinating/managing entity shall provide, in the PoA-DD, a summary of the consultations carried out under the host Party rules, including the direct positive and negative impacts identified and how the negative impacts identified will be addressed.	There is no host country (India) requirement for LSC. The validation team has reviewed the LSC report^{16/} and all the positive and negative impacts are detailed to the stakeholders.
7.8.3. Minimum group of stakeholders to be involved 54. For the purpose of the local stakeholder consultation, the coordinating/managing entity shall invite, as a minimum, representatives of local stakeholders directly impacted by the proposed CDM PoA and representatives of local authorities relevant to the PoA.	Invitations were mainly distributed per invitation e-mail which is the common way of informing about meetings in India. Self Help Groups, stove users and factory workers who might not have access to e-mail have been invited by letter, phone calls or personally. Gold Standard local experts and supporter NGOs were invited through E-mail according to GS's requirement. Additionally the meeting was announced by hanging posters on public sites and by car announcement by Sapient driving around and announcing the meeting.
55. The coordinating/managing entity shall provide evidence that invitations were sent to the relevant stakeholders and that their comments were invited. If any of the relevant stakeholders were not invited, the coordinating/managing entity shall provide appropriate justification.	It is validated as above.

7.8.4. Means for inviting stakeholders' participation 56. The coordinating/managing entity shall invite local stakeholders to provide comments on the proposed CDM PoA in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted, and shall describe the steps/actions taken to invite comments, taking into account local and national circumstances.	As per PoA-DD and CPA-DD^{12/}, it would be demonstrated at the CPA level. The validation team has reviewed the LSC report^{16/} for the CPA1. The project is being developed in Gold Standard as well. CME has sent public notice to identified local stakeholders on 30th July 2018 and 31st July 2018. Invitations were mainly distributed per invitation e-mail which is the common way of informing about meetings in India. Self Help Groups, stove users and factory workers who might not have access to e-mail have been invited by letter, phone calls or personally. Gold Standard local experts and supporter NGOs were invited through E-mail according to GS's requirement. Additionally the meeting was announced by hanging posters on public sites and by car announcement by Sapient driving around and announcing the meeting. Through such public announcements a broad range of stakeholders could be reached, regardless of gender age and ethnicity or level of education.
57. The coordinating/managing entity shall convey information to stakeholders about the local stakeholder consultation and the proposed CDM PoA. This should include information disseminated in ways that are appropriate for the community that is directly affected by the PoA. In areas where a significant part of the population is illiterate, the information shall be provided orally.	It is validated as above.
7.8.5. Information to be made available to stakeholders 58. The coordinating/managing entity shall describe the proposed CDM PoA in a manner that allows local stakeholders to understand the PoA. The information to be made available to stakeholders shall include, inter alia: (a) A summary of the proposed CDM PoA, explaining the PoA in simple, non-technical terms, and containing a description of the direct positive and negative impacts; (b) Information on the projected scope, lifetime, and direct positive and negative impacts of the proposed CDM PoA; (c) Other relevant information about the proposed CDM PoA, taking into account confidentiality provisions of the applicable CDM M&Ps referred to in paragraph 1 above; (d) The means to provide comments about the proposed CDM PoA.	The validation team has reviewed the LSC meeting report^{16/} and confirmed that all the necessary details (purpose, description, benefits, economic and social, environmental impact) are provided to the local stakeholders during the meeting.
7.8.6. Conduct of consultation 59. The coordinating/managing entity shall conduct the local stakeholder consultation through means that are appropriate for the local and national circumstances.	The LSC meeting is conducted on 12th August 2018 at Uluberia, Howrah, West Bengal, India. The LSC meeting is conducted in local language (Bengali and Hindi) so that people understand the LSC.
60. The coordinating/managing entity shall provide local stakeholders with the opportunity to comment in writing or via other means and gather their comments about the proposed CDM PoA and its direct impacts.	The LSC meeting is conducted in local language (Bengali and Hindi) so that people understand the LSC. CME received comments from the local stakeholders.

61. The coordinating/managing entity shall request the DNA(s) of the host Party(ies) to forward any and all comments from local stakeholders to it.	There is no such comments.
7.8.7. Summary of comments received 62. The coordinating/managing entity shall prepare a summary report of the comments received from local stakeholders.	The validation team has reviewed the LSC meeting report ^{16/} .
7.8.8. Consideration of comments received 63. The coordinating/managing entity shall consider the comments provided by local stakeholders and report on how they have taken them into account in the PoA-DD or in the revised PoA-DD. The coordinating/managing entity shall provide justification if any comments were not incorporated.	The validation team has reviewed the LSC meeting report ^{16/} . CME has considered all the comments of local stakeholders.
7.8.9. Timing of local stakeholder consultation 64. The coordinating/managing entity shall complete the local stakeholder consultation process at the timing required by the rules of the host Party on local stakeholder consultation, if such rules exist. If host Party rules do not exist, the coordinating/managing entity shall complete the process before, whichever the earlier of: (a) The earliest of the start dates of the CPAs as defined in the "Glossary: CDM terms"; that will be included in the PoA; or (b) The date of submitting the PoA-DD of the proposed CDM PoA to a DOE for validation.	As per PoA-DD ^{2/} , it would be demonstrated at the CPA level. It also stated that LSC would be conducted before the start date of each CPA. There is no national rules on LSC. LSC was conducted on 12 th August 2018 whereas the start date of the CPA was on 10 th September 2018. Hence accepted.
65. For the PoAs that do not meet the requirement referred to in paragraph 64(a) above, but for which the start date is before 23 February 2017, the coordinating/managing entity may, in accordance with the "Procedure: Direct communication with stakeholders", submit a request for exemption from the requirement to the Board for its consideration on a case- by-case basis.	Since project satisfies the requirement of para 64 above, this condition is not relevant.
7.8.10. Activities after local stakeholder consultation 66. If, during the validation of the proposed CDM PoA, complaints submitted to the DNA(s) of the host Party(ies) on the handling of the outcome of the local stakeholder consultation are forwarded to the coordinating/managing entity through the DOE in accordance with the "CDM project cycle procedure for programmes of activities", the coordinating/managing entity shall take due account of such complaints and modify the PoA-DD as appropriate before the DOE concludes the validation.	There is no such comments.
67. If significant changes to the programme design occur after the invitation of comments from local stakeholders, the coordinating/managing entity shall conduct a new local stakeholder consultation with relevant stakeholders.	There is no such comment.

7.12.6. Eligibility criteria for inclusion of component project activities 123. The coordinating/managing entity shall define the eligibility criteria for inclusion of CPAs in the proposed CDM PoA, setting out required conditions for a proposed CPA to be included in the PoA, and shall demonstrate the usability of the eligibility criteria for assessing the inclusion of CPAs in the PoA. If the PoA establishes multiple generic CPAs, the coordinating/managing entity shall develop a distinct set of eligibility criteria for each generic CPA.	CME has defined eligibility criteria for inclusion of CPA in the PoA-DD. The validation team has reviewed the CPA-DD and how the CPA confirms to the PoA-DD eligibility criteria is detailed below.
124. The eligibility criteria shall cover as a minimum the following: (a) Geographical boundaries of CPAs consistent with the geographical boundary of the PoA;	The CPA is implemented in host country (India). CME signed an end user/beneficiary agreement where location/ GPS of households is recorded. The validation team has reviewed the sample beneficiary agreements^{/7/} and accepted the same. The validation team has confirmed the geographical boundary of the CPA.
(b) Conditions to avoid double counting of GHG emission reductions or net anthropogenic GHG removals, such as unique identifications of product and end-user locations (e.g. programme logo);	CME provided agreement^{/7/} between CME and households(endusers). One of the clause is about the right to claim carbon credit. As per the agreement, the rights of claim of carbon credit lies with the atmosfair, the PP only. The households cede the rights to the PP as it is subsidising the stoves. The validation team has reviewed sample agreements^{/7/} where stove unique id, date of sale, Name and address of the enduser with GPS are recorded. So double counting is avoided.
(c) Conditions to confirm that CPAs are neither registered as CDM project activities, included in another registered PoAs, nor the project activities that have been deregistered;	The validation team has reviewed the CPA-DD where it is stated that the CPA is not registered neither as a single CDM project activity nor as a CPA under another PoA. The unique numbers allocated to each ICS under the CPA allow unique identification and tracking of the project cookstove. Based on the serial numbers, a stove can only count in one CPA only. Hence accepted.
(d) Specification of the technology/measure, such as the level and type of service, as well as performance specification based on, inter alia, testing/certification;	CME provided technical specifications/efficiency certificate from Ministry of Micro, Small and Medium Enterprises^{/6/} dated 21st December 2017. This includes type, installed capacity, dimensions, fixed/portable and efficiency would be mentioned. Hence accepted.
(e) Conditions to check the start dates of CPAs through documentary evidence;	CME provide agreement^{/7/} between CME and households (endusers). The agreement contains date of sale of cook stoves. The consolidated sales database provides the start date of the CPA.
(f) Conditions to ensure compliance with the applicability of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents;	The compliance with the applicability of methodologies is demonstrated at the CPA level. The compliance with the applied methodologies for CPA is reported in Appendix 5 of this report.

(g) Conditions to ensure that CPAs meet the requirements for demonstration of additionality as follows: (i) If the generic CPA applies large-scale methodologies, the conditions shall derive from the requirements contained in the additionality section of the applied methodologies;	CPA used small scale methodologies. Penetration rate: The validation team has observed that the technology in question is biomass based micro-gasifier cook stoves (with portable or in-situ cook stoves with rated efficiency of more than 20% with charcoal as by-product) and services in question is distribution of such cook stoves for cooking purpose to the intended beneficiaries. The validation team has accepted the argument of CME that CME would demonstrate the technology penetration in the host country is equal to or less than 5% at the CPA level at the time of inclusion of each CPA. The validation team has understood that penetration refers to proportion of stock of functional equipment at the user end. The validation team has accepted the type of documents such as official reports, literature, industry reports or survey results (Type of sampling: stratified random sampling; Parameter in interest being proportion (yes or no), confidence/precision being 90/10) to be used for demonstrating the penetration rate. The validation team has accepted the timing of data used that CME would use the most recent data available at the time of submission of the CPA inclusion, and the data vintage used would not include data older than three years prior to (a) the start date of the PoA or (b) the start of validation/inclusion of CPAs, whichever is earlier. The validation team has accepted the revised PoA-DD as it now in line with para 12 of Tool-“Demonstration of additionality of microscale project activities” v9.0. Hence the validation team has accepted that energy efficiency unit can be treated as microscale units upon demonstration of technology penetration rate by the CME as above. In accordance with the above, the CME submitted The Council on Energy, Environment and Water (CEEW) document¹⁷⁷ dated November 2018. CEEW undertook the first dedicated energy access survey in India, ‘Access to Clean Cooking Energy and Electricity—Survey of States’ (ACCESS). As per the document, technology penetration rate was only 0.77% (very much less than threshold limit of 5%). Since the document is available at the time of inclusion of the CPA, the validation team has accepted.
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(ii) If the generic CPA is small-scale in accordance with the thresholds referred to in paragraphs 126 below and applies only small-scale methodologies, the conditions shall derive from the requirements contained in the additionality section of the applied methodologies, or if such section does not exist, from the "Methodological tool: Demonstrating additionality of small-scale project activities"^{/14/} and, where necessary, any applicable additionality tool;	This CPA is having two components with each component using different methodology as below. <table border="1" data-bbox="826 255 1337 479"> <tr> <th>Component</th> <th>Type</th> <th>Methodology applied</th> </tr> <tr> <td>Improved cookstove</td> <td>Type II</td> <td>AMS.II.G v10.0</td> </tr> <tr> <td>Sustainable Charcoal production</td> <td>Type III</td> <td>AMS.III.BG v3.0</td> </tr> </table> As per the appendix of small scale additionality tool^{/15/} v12.0, CME has not defined CPA aggregate for different types. So the CPA can include any number of project cook stoves. <table border="1" data-bbox="826 636 1442 1218"> <tr> <th>Type</th> <th>CPA aggregate threshold limit prescribed as per small scale additionality tool v12.0^{/15/}</th> <th>CPA aggregate for each type</th> </tr> <tr> <td>Type II</td> <td>60 GWh_e per year or 180 GWh_{th} per year</td> <td>Not defined by the CME. So the CPA can include any number of project cook stoves.</td> </tr> <tr> <td>Type III</td> <td>60 ktCO_{2e} per year</td> <td>Not defined by the CME. So the CPA can include any number of project cook stoves</td> </tr> </table> Microscale threshold limit: The validation team has checked the threshold limit documents like MSME certificate^{/6/}, survey reports^{/18/} and confirmed the above data. Since unit size each type is less than that the corresponding limit, each project cookstove can be considered as microscale units.	Component	Type	Methodology applied	Improved cookstove	Type II	AMS.II.G v10.0	Sustainable Charcoal production	Type III	AMS.III.BG v3.0	Type	CPA aggregate threshold limit prescribed as per small scale additionality tool v12.0 ^{/15/}	CPA aggregate for each type	Type II	60 GWh _e per year or 180 GWh _{th} per year	Not defined by the CME. So the CPA can include any number of project cook stoves.	Type III	60 ktCO _{2e} per year	Not defined by the CME. So the CPA can include any number of project cook stoves
Component	Type	Methodology applied																	
Improved cookstove	Type II	AMS.II.G v10.0																	
Sustainable Charcoal production	Type III	AMS.III.BG v3.0																	
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Type II	60 GWh _e per year or 180 GWh _{th} per year	Not defined by the CME. So the CPA can include any number of project cook stoves.																	
Type III	60 ktCO _{2e} per year	Not defined by the CME. So the CPA can include any number of project cook stoves																	

	<table border="1"> <tr> <td>Type</td> <td>Thresold unit size of all cook stoves prescribed as per Appenidx of small scale additionality tool v12.0^{/15/}</td> <td>Unit size of project cookstove</td> </tr> <tr> <td>Type II</td> <td>20 GWh_e per year or 60 GWh_{th} per year</td> <td>7.05 kWh_{th} per project cookstove per year</td> </tr> <tr> <td>Type III</td> <td>20 ktCO₂e per year</td> <td>1.77 tCO₂e per project cookstove per year</td> </tr> </table>	Type	Thresold unit size of all cook stoves prescribed as per Appenidx of small scale additionality tool v12.0 ^{/15/}	Unit size of project cookstove	Type II	20 GWh _e per year or 60 GWh _{th} per year	7.05 kWh _{th} per project cookstove per year	Type III	20 ktCO ₂ e per year	1.77 tCO ₂ e per project cookstove per year
Type	Thresold unit size of all cook stoves prescribed as per Appenidx of small scale additionality tool v12.0 ^{/15/}	Unit size of project cookstove								
Type II	20 GWh _e per year or 60 GWh _{th} per year	7.05 kWh _{th} per project cookstove per year								
Type III	20 ktCO ₂ e per year	1.77 tCO ₂ e per project cookstove per year								
(iii) If the generic CPA is microscale in accordance with the thresholds referred to in paragraph 128 below and applies the “Methodological tool: Demonstrating additionality of microscale project activities” regardless of the scale of methodologies applied (i.e. large-scale methodologies, small-scale methodologies or combination thereof), the conditions shall derive from this tool;	Additionality: <table border="1"> <tr> <td>Type</td> <td>Thresold unit size of each cook stove for being additional as prescribed in Appenidx of small scale additionality tool v12.0^{/15/}</td> <td>Unit size of project cookstove</td> </tr> <tr> <td>Type II</td> <td>600 MWh_e per year or 1800 MWh_{th} per year and end users are households/ communities/ SMEs</td> <td>7.05 kWh_{th} per project cookstove per year. End user is households</td> </tr> <tr> <td>Type III</td> <td>600 tCO₂e per year and end users are households/ communities/ SMEs</td> <td>1.77 tCO₂e per project cookstove per year. End user is SME</td> </tr> </table> As all the relevant is satisfied, generic CPA is additional It is already validated as above.	Type	Thresold unit size of each cook stove for being additional as prescribed in Appenidx of small scale additionality tool v12.0 ^{/15/}	Unit size of project cookstove	Type II	600 MWh _e per year or 1800 MWh _{th} per year and end users are households/ communities/ SMEs	7.05 kWh _{th} per project cookstove per year. End user is households	Type III	600 tCO ₂ e per year and end users are households/ communities/ SMEs	1.77 tCO ₂ e per project cookstove per year. End user is SME
Type	Thresold unit size of each cook stove for being additional as prescribed in Appenidx of small scale additionality tool v12.0 ^{/15/}	Unit size of project cookstove								
Type II	600 MWh _e per year or 1800 MWh _{th} per year and end users are households/ communities/ SMEs	7.05 kWh _{th} per project cookstove per year. End user is households								
Type III	600 tCO ₂ e per year and end users are households/ communities/ SMEs	1.77 tCO ₂ e per project cookstove per year. End user is SME								

(iv) If investment analysis is used for the demonstration of additionality under the options referred to in subparagraphs (i) or (ii) above, the conditions shall: a. Define the input parameters that will be used in the investment analysis, together with a description of how the values for these parameters will be obtained for each CPA. The additionality of each CPA shall then be assessed by using the actual values, applicable to that CPA at the time of inclusion, in the investment analysis conducted for the purpose of demonstrating the additionality of the CPA; or	Investment analysis is not used to demonstrate additionality. Hence not applicable.
b. Define technical and economic criteria with a range of values for each input parameter, which qualify a CPA for inclusion in the PoA. Under this option, the eligibility criteria shall be updated in accordance with the requirements specified in the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents, following the process of post-registration changes in accordance with the "CDM project cycle procedure for programmes of activities". At the time of inclusion of a CPA, the coordinating/managing entity shall assess whether the actual values applicable to the CPA at that time fall within the range;	Investment analysis is not used to demonstrate additionality. Hence not applicable.
(v) If the generic CPA applies a combination of large-scale methodologies or large-scale and small-scale methodologies, and the combination results in changed cash-flow for individual measures in comparison to the situation where the measures are implemented separately, the conditions shall be such that additionality is demonstrated for the measures both individually (i.e. for each of the measures) and collectively (i.e. for the combination of the measures);	Investment analysis is not used to demonstrate additionality. Hence not applicable.
(vi) If the generic CPA applies large-scale or small-scale A/R methodologies, the conditions shall derive from the requirements contained in the additionality section of the applied methodologies;	CPA is not using A/R methodology.
(vii) If the generic CPA applies a standardized baseline that standardizes additionality, the conditions shall ensure that the applicability condition of the standardized baseline are met	CPA does not use standardised baseline. Hence not applicable.
(h) Conditions to ensure the compliance with other requirements of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents;	The compliance with the applicability of methodologies is demonstrated at the CPA level. The compliance with the applied methodologies for the CPA is reported in Appendix 5 of this report.
(i) The PoA-specific requirements, including any conditions related to undertaking local stakeholder consultation and environmental impact analysis;	It is already validated as above.
(j) Conditions to provide an affirmation that funding from Annex I Parties, if any, does not result in a diversion of official development assistance;	CME confirmed in the PoA-DD that the PoA has not received public funding from Annex I parties that could result in a diversion of official development assistance. CME/PP is funding for the implementation of the PoA. Hence no public funding would be used.

(k) Target group (e.g. domestic/ commercial/ industrial, rural/ urban, grid-connected/off-grid), and where applicable, distribution mechanisms (e.g. direct installation)	The validation team has reviewed the CPA-DD ^{13/} wherein it is observed that project cook stoves are sold at a subsidised price to households in rural area. The CME is signing an agreement with end users. The validation team has reviewed one agreement where stove unique id, date of sale, Name and address of the enduser with GPS are recorded.
(l) If the generic CPA applies sampling for the determination of parameter values for calculating GHG emission reductions or net anthropogenic GHG removals, conditions related to sampling requirements for the PoA in accordance with the "Standard: Sampling and surveys for CDM project activities and programme of activities";	The calculation of CER is demonstrated at the CPA level. The validation team has reviewed the CPA-DD and accepted the sampling requirements for the monitoring parameters.
(m) If the generic CPA is small-scale or microscale, conditions to ensure that CPAs that will be included meet the small-scale or microscale thresholds and remain within those thresholds throughout the crediting period of the CPAs. However, if the generic CPA consists solely of units that qualify as "microscale CDM units" as defined in the "Methodological tool: Demonstration of additionality of microscale project activities", these conditions are not required;	It is already validated under additionality section as above
(n) If the generic CPA is small-scale or microscale, conditions for the debundling check based on the "Methodological tool: Assessment of debundling for small-scale project activities". However, if the generic CPA consists solely of units that qualify as "microscale CDM units", these conditions are not required.	Since the CPA consists of solely of units that that qualify as "microscale CDM units, debundling requirement is not required to be demonstrated.

Appendix 7: VVS-PoA v2.0 requirements for inclusion of component project activities

Requirements of Validation and Verification Standard for PoA v2.0	Validation opinion of how requirement of each para of VVS-PoA is satisfied												
8. Validation for inclusion of component project activities 8.1. General validation requirements 179. The DOE contracted by the project participations or the coordinating/managing entity to validate a proposed CPA for inclusion in a registered CDM PoA shall be accredited for the validation function and in the sectoral scope(s) relevant to the CPA.	CPA1: (2 components) <table><tr><th>Component</th><th>Type</th><th>Methodology applied</th><th>Sector</th></tr><tr><td>Improved cookstove</td><td>Type II</td><td>AMS.II.G v10.0</td><td>3</td></tr><tr><td>Sustainable Charcoal production</td><td>Type III</td><td>AMS.III.BG v3.0</td><td>5</td></tr></table> As per this link https://cdm.unfccc.int/DOE/list/index.html, EPIC is accredited for all sectors including sectors 3 and 5. EPIC is signed an agreement for conducting the scope of PoA validation with atmosfair, the PP.	Component	Type	Methodology applied	Sector	Improved cookstove	Type II	AMS.II.G v10.0	3	Sustainable Charcoal production	Type III	AMS.III.BG v3.0	5
Component	Type	Methodology applied	Sector										
Improved cookstove	Type II	AMS.II.G v10.0	3										
Sustainable Charcoal production	Type III	AMS.III.BG v3.0	5										
180. The DOE shall apply the objectives, approach and means of validation in section 7.1 above mutatis mutandis when validating a proposed CPA for inclusion in the registered CDM PoA.	The validation team has visited the project site, reviewed the records and accepted												

181. The DOE shall assess whether the proposed CPA complies with the corresponding generic CPA-DD in the latest version of the registered PoA-DD, including the eligibility criteria for the inclusion of CPAs in the registered CDM PoA and relevant CDM rules and requirements.	CPA satisfied the eligibility criteria for inclusion in the PoA. Refer Appendix 6 of this report for details.
182. If the coordinating/managing entity has chosen to delay the submission of the monitoring plan for the proposed CPA, the DOE shall apply, mutatis mutandis, the relevant requirements in section 7.13.3.5.3 above to validate the information related to the monitoring plan in the CPA-DD when assessing the compliance with the requirement in paragraph 181 above.	CME did not opt for delayed monitoring plan.
183. It is mandatory for the DOE to conduct an on-site inspection at validation for the proposed CPA if: (a) Its estimated annual average of GHG emission reductions or net anthropogenic GHG removals is more than 100,000 t CO ₂ eq; or (b) There is pre-project information that is relevant to the requirements for inclusion of the CPA and may not be traceable after the inclusion.	The validation team has visited the project site on 13 th February 2020.
184. For cases that are not referred to in paragraph 183 above, it is optional for the DOE to conduct an on-site inspection at validation. If the DOE does not conduct an on-site inspection as a means of validation, it shall describe the alternative means used and justify that they are sufficient for the purpose of validation.	The validation team has visited the project site on 13 th February 2020.
8.2. General description of component project activity 185. The DOE shall assess the CPA-DD submitted by the coordinating/managing entity and shall confirm that the proposed CPA has: (a) Only one host Party; (b) Its geographic reference or other means of identification; (c) A CPA implementer(s), an entity(ies)/individual(s) responsible for its operation; (d) Been neither registered as a CDM project activity nor included in another registered CDM PoA.	CPA has one host party (India). CPA is implemented in India only. CME and PP are responsible for the operation of CPA. CPA was neither registered as a CDM project activity nor included in another registered CDM PoA.
186. The DOE shall determine whether the description of the proposed CPA in the CPA-DD is accurate, complete, and provides an understanding of the proposed CPA.	The validation team has reviewed the CPA-DD and confirmed that description is accurate and complete.
187. If the proposed CPA involves the alteration of an existing installation or process, the DOE shall assess whether the project description states the differences resulting from the CPA compared to the pre-project situation.	The validation opinion of the project and the baseline is already validated.

188. If the proposed CPA is in the same geographical location as a registered CDM project activity or an included CPA under a registered CDM PoA whose crediting period has or has not expired (hereinafter referred to as former project), as declared by the coordinating/managing entity in the CPA-DD or based on the finding of the DOE during validation, the DOE shall confirm that the proposed CPA will not lead to the discontinuation or modification of the former project and will not decrease GHG emission reductions or removals by the former project based on the relevant requirements in the “CDM project standard for programmes of activities	The validation team has reviewed the procedure how a cookstove would be included in a CPA of this PoA10156. The validation team based on the interview with CME, Atmosfair and Sapient understood that when there is a demand for cook stoves from the market or CME wanted to extend the PoA, Nature Club of Rajasthan (the CME), on behalf of Atmosfair would order for the making the cook stoves to Sapient. Generally the CME would get finance support from Atmosfair. Sapient, the stove manufacturer, before making a cookstove would know in which PoA, the cookstove would be included. The stove ids are generated in such a way to easily identify in which PoA it falls under. There is no chance of other PoA stove being included in this PoA or vice-versa. While distributing the stove, sale agreement (that contains the stove ids) would be signed between the CME and the beneficiary or stove user. The validation team has observed that CME is responsible for checking the features of potential cook stoves and ensure that each cookstove meets the eligibility criteria before inclusion. CME is using CPA inclusion management system to check if the CPA or stove to be included under the PoA meets the eligibility criteria. The validation team has reviewed latest CME letter^{14/} dated 11th December 2019 regarding robust management system adopted by the CME/atmosfair in the CPA inclusion etc. The validation team has reviewed the management system and accepted the same. The procedure for inclusion is similar for PoA10292 (this PoA/CPA located in West Bengal where atmosfair is the PP) as well. Thus the validation team concludes the both PoAs are independent to each other and is mutually exclusive physically.
189. In the case of the implementation of distributed units in household projects without the relevant requirements in the “CDM project standard for programme of activities” being met, the DOE shall validate and confirm by other means that the proposed CPA will not lead to the discontinuation or modification of the former project and will not decrease GHG emission reductions or removals by the former project, and justify the assessment in its validation report. The DOE shall use its local and sectoral expertise to confirm that there is no overlap of different measures and, where applicable, apply the “Guidelines for the consideration of interactive effects for the application of multiple CDM methodologies for a programme of activities” to address cross-effects.	It is already validated as above. There is no cross effects.
190. In all other cases, if the coordinating/managing entity has not submitted a communication to the Board to request clarification in accordance with the “CDM project standard for programmes of activities”, the DOE shall submit such communication to the Board in accordance with the “Procedure: Direct communication with stakeholders” prior to including the proposed CPA in a registered CDM PoA.	This is not relevant.

191. If the proposed CPA has been previously excluded from a registered CDM PoA, the DOE shall assess whether: (a) The CPA-DD transparently declares that the CPA has been previously excluded from the same or different PoA, either voluntarily or due to erroneous inclusion;	Since the CPA has not been previously excluded from a registered PoA, this requirement is not relevant.
(b) The crediting period type (i.e. renewable or fixed) and the total length of the crediting period (i.e. maximum 21 years for the renewable crediting period type and maximum 10 years for the fixed crediting period type) and its end date are the same as before the exclusion;	Since the CPA has not been previously excluded from a registered PoA, this requirement is not relevant.
(c) If the crediting period type is renewable and the re-inclusion takes place after the end of the crediting period in which the exclusion occurred, the CPA complies with the corresponding generic CPA-DD in the latest version of the registered PoA-DD, including eligibility criteria for the inclusion of CPAs, and relevant CDM rules and requirements;	Since the CPA has not been previously excluded from a registered PoA, this requirement is not relevant.
(d) If the CPA applies an approved methodology that potentially accrues negative GHG emission reductions, GHG emission reductions have been continuously monitored since the end of the monitoring period in the last published monitoring report, including the exclusion period. For such a CPA, if there were net negative GHG emission reductions during the period before the re-inclusion, the amount shall be deducted from the first requests for issuance after the re-inclusion;	Since the CPA has not been previously excluded from a registered PoA, this requirement is not relevant.
e) If the CPA has been excluded as a result of erroneous inclusion, the non-compliance with the requirements for inclusion in the PoA that led to the erroneous inclusion has been rectified and, if certified emission reductions (CERs) have been issued for the CPA, an equivalent amount of Kyoto credits have been compensated by the DOE that erroneously included the CPA or that validated the CPA at its first verification if it was included by the coordinating/managing entity, in the CDM registry in accordance with the "CDM project cycle procedure for programmes of activities".	Since the CPA has not been previously excluded from a registered PoA, this requirement is not relevant.
192. The DOE shall: (a) Describe the process undertaken to validate the accuracy and completeness of the description in the CPA-DD;	Based on the onsite observation, the validation team has confirmed the description mentioned in the CPA-DD is accurate and complete.
(b) State its opinion on the accuracy and completeness of the description in the CPA-DD.	Based on the onsite observation, the validation team has confirmed the description mentioned in the CPA-DD is accurate and complete.
8.3. Application of methodologies and standardized baselines 8.3.1. Reference to methodologies and standardized baselines 193. The DOE shall describe the steps taken to assess and state its opinion on the applicability of the selected methodologies, the selected standardized baselines and the other applied methodological regulatory documents to the CPA as specified in the corresponding generic CPA.	The validation opinion of the applicable conditions of the methodologies applied (AMS.II.G v10.0 and AMS.III.BG v3.0) is detailed in Appendix 5 of this report.

8.3.2. Project boundary, sources and greenhouse gases 194. The DOE shall describe the steps taken to assess and state its opinion on sources and GHGs included in the CPA boundary for the purpose of calculating project emissions and baseline emissions in accordance with the modalities in the corresponding generic CPA.	The validated team has reviewed the final CPA-DD^[2] under relevant section project boundary and accepted the source and sink of the CPA. Scenario mentioned in the relevant sections (under project boundary section and baseline section for the CPA) is consistent.
8.3.3. Baseline scenario 195. The DOE shall assess the baseline scenario established and described for the proposed CPA in accordance with the modalities in the corresponding generic CPA.	This CPA involves two components namely Type 2 (energy efficiency), type 3 (sustainable charcoal production and consumption). The baselines for each component is validated below. Type 2 component: As per para 21 of AMS.II.G v10.0^[2], 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. The validation team has confirmed that targeted baseline households uses fuelwood using in traditional stoves (efficiency being 10%) without proper combustion air supply, grate or chimney. Hence the baseline therefore forms the consumption of fuel wood using traditional stoves. Since performance of LPG stoves and kerosene stoves are superior to traditional cook stoves, these cannot be part of baseline scenario. Type 3 component: As per para 19 & 20 of AMS.III.BG v3.0^[2], for the charcoal portion produced from non-renewable biomass in the baseline, it is assumed that in the absence of the project activity, the baseline scenario would be the future use of fossil fuels for meeting similar thermal energy needs. For the charcoal portion produced from renewable biomass in the baseline, traditional open-ended methods resulting in methane emitted to the atmosphere forms the baseline scenario. The component aims at replacing conventional charcoal used by different consumers who use conventional charcoal produced from unsustainably harvested fuelwood. Hence forms the baseline. CER will only be claimed for charcoal generated as a by-product in cooking in project cookstove for which ER are also claimed under AMS-II.G. Another element of the baseline scenario of this component consists in methane generation from traditional open-ended charcoal production methods for conventional charcoal replaced by the CPA. As per para 20 and 21 of AMS.III.BG v3.0^[2], methane generation is considered for the portion of charcoal produced from the fraction of biomass deemed renewable only. Hence accepted by the validation team.

196. In the case of the replacement of existing equipment, the DOE shall determine whether the coordinating/managing entity estimated the point in time when the existing equipment would be replaced in the absence of the proposed CPA in accordance with the "Tool to determine the remaining lifetime of equipment".	Since the project is distribution of cook stoves in the households, remaining lifetime of existing traditional cook stoves can be disregarded. This is in line with para 196 of PS-PoA v2.0.
8.3.4. Estimation of emission reductions or net anthropogenic removals 197. The DOE shall describe the steps taken to assess: (a) The equations and parameters applied to calculate GHG emission reductions or net anthropogenic GHG removals for the CPA in accordance with the modalities in the corresponding generic CPA;	The validation team has reviewed the CPA-DD where baseline, project and leakage emission calculation is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.
(b) The data and parameters fixed ex ante that are used in the equations to calculate GHG emission reductions or net anthropogenic GHG removals for the CPA in accordance with the modalities in the corresponding generic CPA;	The validation team has reviewed the CPA-DD where baseline, project and leakage emission calculation is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.
(c) The methodologies and, where applicable, the standardized baselines and the other methodological regulatory documents have been applied correctly to calculate baseline, project and leakage GHG emissions as well as GHG emission reductions or net anthropogenic GHG removals in accordance with the modalities in the corresponding generic CPA;	The validation team has reviewed the CPA-DD where baseline, project and leakage emission calculation is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.
(d) The ex ante estimates of baseline, project and leakage GHG emissions as well as GHG emission reductions or net anthropogenic GHG removals, including whether the estimates can be replicated, in accordance with the modalities in the corresponding generic CPA.	The validation team has reviewed the CPA-DD where baseline, project and leakage emission calculation is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.
8.3.5. Monitoring plan 198. The DOE shall determine whether the coordinating/managing entity chose to delay the submission of the monitoring plan. If so, the DOE shall confirm that the coordinating/managing entity clearly stated the delay in the CPA-DD. Otherwise, the DOE shall describe: (a) How the data and parameters to be monitored or estimated on implementation that are used in the equations to calculate GHG emission reductions or net anthropogenic GHG removals for the CPA were assessed in accordance with the modalities in the corresponding generic CPA;	CME did not opt for delayed monitored plan. The validation team has reviewed the CPA-DD where monitoring plan is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.
(b) How the description of the monitoring plan was assessed in accordance with the modalities in the corresponding generic CPA.	The validation team has reviewed the CPA-DD where monitoring plan is demonstrated. The validation of calculation of ER for the CPA (ex-ante, ex-post parameters, monitoring plan, QA/QC procedure are detailed in Appendix 8 of this report.

8.4. Start date, crediting period type and duration 199. The DOE shall determine whether the coordinating/managing entity specified the following on the start date and crediting period type and duration of the proposed CPA in accordance with relevant requirements in the “CDM project standard for programmes of activities”: (a) Start date of the proposed CPA; (b) Expected operational lifetime; (c) Type and duration of the crediting period; (d) Start date of the crediting period	As per Glossary: CDM terms v10.0, start date of a CPA is the date of provision of the service such as distribution of cookstove. The starting date is 10th September 2018, with the sale of the first cookstove (serial no A31001). The validation team has reviewed the agreement with households^{77/} and accepted the same. The validation team has reviewed the lifetime certificate^{78/} from Sapiant infotech-Cookstove assembler. The lifetime is 7 years. CPA has renewable crediting period of 7 years. Crediting period will start from the date of inclusion of this CPA.
200. The DOE shall confirm that the start date of any proposed CPA is on or after the start date of the registered CDM PoA. Exceptions apply to proposed A/R CPAs, i.e. the exceptions indicated for proposed A/R CDM project activities in relevant requirements in the “CDM project standard for project activities” also apply to proposed A/R CPAs. Any A/R project activity that started after 1 January 2000 but has not been registered as a CDM project activity may be included as a CPA in a registered A/R PoA after 31 December 2005 as long as the first verification of the A/R CPA occurs after the date of inclusion of this CPA, and the included A/R CPA can accrue temporary certified emission reductions (tCERs) or long-term certified emission reductions (ICERs) as of the starting date.	Start date of the PoA was 7th June 2018. Start date of the CPA is 10th September 2018. The validation team has confirmed that start date of the CPA is after the start date of the registered CDM PoA.
201. The DOE shall assess the start date and crediting period type and duration specified in the CPA-DD by means of a document review, use of official sources and its local and sectoral expertise, interviews with relevant personnel and/or, where conducted in accordance with paragraph 183 or 184 above, on-site inspection(s).	As per Glossary: CDM terms^{73/} v10.0, start date of a CPA is the date of provision of the service such as distribution of cookstove. The starting date is 10th September 2018, with the sale of the first cookstove (serial no A31001). The validation team has reviewed the agreement with household and accepted the same.
202. The DOE shall describe the steps taken to assess and state its opinion on the compliance of the start date and crediting period type and duration specified in the CPA-DD with the relevant requirements in the “CDM project standard for programmes of activities”.	CPA has renewable crediting period of 7 years. Crediting period will start from the date of inclusion of this CPA.
8.5. Environmental impacts 203. If the coordinating/managing entity has chosen to carry out the analysis of environmental impacts at the CPA level, the DOE shall assess the analysis and, if considered significant by the coordinating/managing entity or by the host Party, the environment impact assessment in accordance with the applicable requirements in section 7.7 above.	It is already validated in Appendix 6 of this report
8.6. Local stakeholder consultation 204. If the coordinating/managing entity has chosen to carry out the local stakeholder consultation process at the CPA level, the DOE shall assess whether the local stakeholder consultation process was carried out in accordance with the applicable requirements in section 7.9 above.	It is already validated in Appendix 6 of this report

8.7. Eligibility for inclusion 205. The DOE shall assess whether the proposed CPA complies with the eligibility criteria for the inclusion of CPAs defined for the corresponding generic CPA	It is already validated in Appendix 6 of this report			
8.8. Specific requirements for small-scale component project activities 8.8.1. Debundling of component project activity 206. The DOE shall determine whether the proposed small-scale CPA is not a debundled component of a large-scale activity in accordance with the “Methodological tool: Assessment of debundling for small-scale project activities”.	The validation team has observed the following.			
	Type	Threshold unit size of each cook stove for being additional as prescribed in Appendix of small scale additionality tool v12.0 ^{/14/}	Unit size of project cookstove	
	Type 2	600 MWh _e per year or 1800 MWh _{th} per year and end users are households/ communities/ SMEs	7.05 kWh _{th} per project cookstove per year. End user is households	
	Type 3	600 tCO2e per year and end users are households/ communities/ SMEs	1.77 tCO2e per project cookstove per year. End user is SME	
	Since each of the units contained in the CPA satisfies the condition to qualify as a ‘microscale CDM unit’, then validation team has accepted that CME is not required to demonstrate compliance of the CPA with the microscale or small-scale thresholds at the aggregate level of the CPA and the requirements related to debundling stated in paragraph 6 of Microscale additionality tool v9.0^{/15/} do not apply.			
The validation team has also observed the following.				
Type	Small scale thresholds as defined PS-PoAv2.0	1% of Small scale thresholds	Unit size of project cookstove	
Type II	60 GWh per year or 180 GWh _{th} per year	1800 MW _{th} per year	7.05 kWh _{th} per year.	
Type III	60 ktCO2e per year	600 tCO2e	1.77 tCO2e per year.	
Since each of the independent cook stoves included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the methodology/types applied, CPA of PoA is exempted from performing de-bundling check i.e., considering as not being a de-bundled component of a large scale activity. This is in line with para 17 of Debundling tool^{/15/} v4.0.				

207. If each of the independent subsystems/measures (e.g. biogas digester, solar home system) included in the proposed CPA is no larger than 1 per cent of the small-scale thresholds defined by the methodology applied (i.e. 150 kW installed capacity or 0.6 GWh annual energy savings or 0.6 kt CO ₂ eq annual emission reductions), then that CPA is exempted from the debundling check, meaning it is considered as not being a debundled component of a large-scale activity.	It is already validated as above.
208. The DOE shall determine the proposed small-scale CPA to be a debundled component of a large-scale activity if there is already an activity that satisfies both conditions (a) and (b) below: (a) The activity has the same activity implementer as the proposed small-scale CPA, or has the same coordinating/managing entity managing another registered CDM PoA that includes only large-scale CPAs of the same technology/measure;	It is already validated as above.
(b) The boundary of the activity is within 1 km of the boundary of the proposed small-scale CPA at the closest point.	It is already validated as above.
209. The DOE shall state its conclusion and specific details on how it assessed whether a proposed small-scale CPA is not a debundled component of a large-scale activity	It is already validated as above.
8.8.2. Environmental impacts 210. If the coordinating/managing entity chose to conduct an analysis of environmental impacts at the CPA level, the following applies to a proposed small-scale CPA instead of paragraphs 51 and 52 above: The DOE shall determine whether the coordinating/managing entity conducted an analysis of the environmental impacts of the proposed small-scale CPA if required by the host Party.	It is already validated in Appendix 6 of this report.
211. The following applies to a proposed small-scale CPA instead of paragraph 54 above: The DOE shall indicate whether the coordinating/managing entity has undertaken an analysis of environmental impacts if required by the host Party.	It is already validated in Appendix 6 of this report.
8.11. Validation opinion and report 8.11.1. Validation opinion 241. If the DOE determines that the proposed CPA complies with the corresponding generic CPA-DD in the latest version of the registered PoA-DD and relevant CDM rules and requirements, the DOE shall issue a positive validation opinion and include the CPA in the registered CDM PoA in accordance with the "CDM project cycle procedure for programmes of activities".	Based on the onsite visit and review of documents/records, the validation team is issuing positive validation opinion and this CPA can be included under the PoA10516.
242. If the DOE determines that the proposed CPA does not comply with the corresponding generic CPA-DD in the latest version of the registered PoA-DD or relevant CDM rules and requirements, the DOE shall issue a negative validation opinion.	Based on the onsite visit and review of documents/records, the validation team is issuing positive validation opinion and this CPA can be included under the PoA10516.

8.11.2. Validation report 243. In its validation report for the inclusion of the proposed CPA in the registered CDM PoA, the DOE shall: (a) Provide all its applied approaches, findings and conclusion on: (i) The completion of the CPA-DD, using the valid version of the applicable form and following instructions therein;	It is already reported in section D of this report.
(ii) The requirements relevant to the inclusion of the CPA in the PoA referred to in paragraphs 181 and 182 above; (b) Report on all items listed in paragraph 177 above except sub-paragraph 177(c) above.	It is already reported in section D of this report.

Appendix : Emission reduction calculation :

Emission reduction achieved by the CPA (ER_y)	This CPA aims at reducing the fuel wood consumption by supplying improved cook stoves to the targeted households replacing the traditional cook stoves. The emission reduction from this component is calculated using the applied methodology AMS.II. G v10.0^{/2/}. The improved cook stoves would also generate charcoal as a by-product. The households would then supply/sale charcoal to the project which sells charcoal to charcoal users/retailers. This would reduce the generation and consumption of conventional charcoal. The emission reduction from this component is calculated using the applied methodology AMS.III. BG v3.0^{/2/}. Hence, $ER_y = ER_{AMS.II.G} + ER_{AMS.III.BG}$ Where $ER_{AMS.II.G}$ - Emission reduction from AMS.II.G component $ER_{AMS.III.BG}$ - Emission reduction from AMS.III. BG v3.0 component The validation of emission reduction calculation for this CPA is detailed below.
Emission reduction from AMS.II.G component ($ER_{AMS.II.G}$)	As per para 21 of AMS.II.G v10.0^{/2/}, 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 para 22/equation 1 of AMS.II.G v10.0, emission reduction is calculated as below $ER_{AMS.II.G,y} = \sum \sum ER_{y,i,j} - LE_y$ Where i-Indices for the situation where more than one type of project device is introduced to replace the pre-project devices j-Indices for the situation where there is more than one batch of project device $ER_{y,i,j}$ -Emission reductions by project device of type i and batch j during year y LE_y -Leakage emissions in the year y The validation of each is detailed below

Emission reductions by project device of type <i>i</i> and batch <i>j</i> during year <i>y</i> ($ER_{y,i,j}$)	As per equation 2 of AMS.II.G v10.0, $ER_{y,i,j} = B_{y,savings,i,y} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\ fossil\ fuel}$ Where $B_{y,savings,i,y}$ -Quantity of woody biomass that is saved in tonnes per cookstove device of type <i>i</i> and batch <i>j</i> during year <i>y</i> $N_{y,i,j}$ -Number of project devices of type <i>i</i> and batch <i>j</i> operating during year <i>y</i> μ_y -Adjustment to account for any continued use of pre-project devices during the year <i>y</i> $f_{NRB,y}$ -Fraction of woody biomass that can be established as non-renewable biomass $NCV_{biomass}$ -Net calorific value of the non-renewable woody biomass that is substituted $EF_{projected\ fossil\ fuel}$ -Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers The validation of each is detailed below.
Quantity of woody biomass that is saved in tonnes per cookstove device of type <i>i</i> and batch <i>j</i> during year <i>y</i> ($B_{y,savings,i,y}$)	As per para 23 of AMS.II.G, $B_{y,savings,i,y}$ due to implementation of efficient thermal devices is estimated as per the four options. The validation team has checked the PoA-DD wherein CME has opted for option 3 (Water boiling test). As per para 27 of AMS.II.G v10.0, Under option 3, there are two equations (equation 6 and equation 7). CME considered equation 7. As per equation 7, $B_{y,savings,i,y} = B_{y=1,new,i,j,survey} \times (\eta_{new,i,j} / \eta_{old,i,j} - 1)$ Where $B_{y=1,new,i,j,survey}$ -Quantity of woody biomass used by project devices in tonnes per device of type <i>i</i> and batch <i>j</i> $\eta_{new,i,j}$ -Efficiency of the project device <i>i</i> and batch <i>j</i> $\eta_{old,i,j}$ -Efficiency of the old devices being replaced by project devices of type <i>i</i> and batch <i>j</i> The monitoring approach is valid for the CPA which is in line with para 45 of AMS.II.G v10.0. The validation of each is detailed below.
Quantity of woody biomass used by project devices in tonnes per device of type <i>i</i> and batch <i>j</i> ($B_{y=1,new,i,j,survey}$) =1.69 tonnes of wood per project cookstove per year (monitored parameter)	Ex-ante estimation: As per para 29 of AMS.II.G v10.0, the calculations in the equations above assume that there is only one device per household. Since the CME is planned to disseminate project cookstove to households at a subsidised price, as a matter of policy, it would provide one project cookstove only to a household. However, if future CME decided to provide cook stoves to community or schools, the same would be adjusted according to the methodologies. No charcoal would be used in the baseline or project cookstove, so para 30 is not applicable. The lifetime of the project cookstove is 7 years as per the manufacturer specification^{/8/}. As per table 15 of AMS.II.G v10.0, the parameter shall be calculated in the first year of the introduction of the devices (e.g. during the first year of the crediting period, <i>y</i>=1) through sample measurement campaigns at representative households and/or sample survey. As per the PoA-DD, it would be calculated through sample survey

	based on number of canisters used per week (fillings) and weight of each canister(load). For ex-ante estimation, value is taken from GS1296 project located in the same region/West Bengal^{/18/}. During monitoring: $B_{y=1,new,i,j,survey}$ = number of canisters used per week x weight of each canister or $B_{y=1,new,i,j,survey} = fillings_{y=1} * load_{y=1}$ Number of canisters would be determined by monitoring survey and weight of canister would be determined during WBT test annually. Only calibrated equipments would be used for measurements. The validation team has reviewed sample calibration certificates^{/9/} and accepted the same.
Efficiency of the project device i and batch j ($\eta_{new,i,j}$)=28% (monitoring parameter) Loss of efficiency is determined from options 'c'	As per table 11 of AMS.II.G v10.0, Efficiency shall be measured/estimated as per the following: 1.The efficiency of the project devices shall be based on certification by a national standards body or an appropriate certifying agent recognized by that body As per the CPA-DD, the efficiency is tested and confirmed by the testing center of the Ministry of Micro, Small & Medium Enterprises^{/6/} dated 21st December 2017. The validation team has reviewed the document and accepted the same. As per table 11 of AMS.II.G v10.0, the sampling test of stoves by such certification bodies/agents or manufacturers shall be conducted following a 90/10 precision in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities"^{/22/} v8.0. However, the following simplified approach may be used, when the efficient cookstoves are produced by a manufacturer with a good quality management system in place to ensure that the individual equipment produced do not vary beyond the range of acceptance limits (e.g. characteristics such as materials, critical dimensions): (i) Conduct a sample test on three cookstoves with three tests conducted for each stove. The test can be carried out by project proponents by themselves or stove manufacturers; (ii) If the standard deviation of the nine test results indicated above is very small and 90/10 precision requirement is met (in this case, the value of the t-distribution for 90 per cent confidence shall be used instead of Z value), the efficiency determined is acceptable, otherwise more sample tests would be required until 90/10 precision is met. The loss of efficiency will be determined as per one of the 4 options as specified in para 32a,b,c,d. The parameter is measured by dedicated trained monitoring team based on WBT test under field conditions if option c is chosen. The efficiency of the project devices of the first batch will be monitored annually following the Water Boiling Test protocol version 4.2.3^{/23/}. WBT would not account of quantity of charcoal generated. WBTs will be conducted on randomly selected project cookstoves; the sample size of project cookstove testes will be large enough to meet the 90/10 requirements of the methodology.

	The validation team has interviewed the CME and accepted the monitoring approach as robust/feasible. As per para 32 of AMS.II.G, the loss in efficiency of the project devices i in each batch j due to aging shall be accounted during the monitoring period y. As option 3 was selected, the CME may choose any option mentioned in para 32 to account for the loss in efficiency. The option shall be identified and fixed ex ante in the PDD at the time of registration. As per the CPA-DD, CME has opted for option C i.e Determination of the rate of efficiency drop for a representative sample of the first batch of project device i in year y and assume that same rate of loss in efficiency applies to all other batches. In other words, it may be assumed that the degradation of efficiency measured in a representative sample of the first batch of project devices i apply to all subsequent batches. The efficiency of the project devices in the first batch has to be monitored annually through representative samples and this rate of loss in efficiency may be applied correspondingly to all batches.
Efficiency of the old devices being replaced by project devices of type i and batch j ($\eta_{old,i,j}$) = 10% (monitored parameter)	As per table 17 of AMS.II.G v10.0, it can be fixed for each individual household as default value. The validation team has interviewed the CME and accepted the value as correct.
Quantity of woody biomass that is saved in tonnes per cookstove device of type i and batch j during year y ($B_{y,savings,i,y}$) = 2.89 tonnes per cookstove per year	As per para 27 of AMS.II.G v10.0, Under option 3, there are two equations (equation 6 and equation 7). CME considered equation 7. As per equation 7, $B_{y,savings,i,y} = B_{y=1,new,i,i,survey} \times (\eta_{new,i,i} / \eta_{old,i,i} - 1)$
Number of project devices of type i and batch j operating during year y ($N_{y,i,j}$) = 30,000 for the first year (monitored parameter) Source: Inventory control sheets/database^{/5/} Statistically adjusted drop out from total population of ICS in period y ($DO_{II,G,y}$) = 5% (monitored parameter)	As per table 8 of AMS.II.G^{/2/} v10.0, it shall be determined measured directly or based on a representative sample. Sampling standard shall be used for determining the sample size to achieve 90/10 confidence precision. If the survey shows 10% as non-operating, then an adjustment factor of 0.9 shall be applied to number of project devices commissioned in a particular batch. As per the PoA-DD, $N_{y,i,j} = N_{soldtotal,y,i,j} \times d_{average,y} / mplength_y$ Where $N_{soldtotal,y,i,j}$ - total number of ICS type i and batch j sold within monitoring period y It will be measured number of sales contracts stored and the corresponding number of entries of ICS sold in the database $d_{average,y}$ - average number of days the ICS sold in period y were operational in period y, derived from sales dates on sales contracts $mplength_y$ - length of monitoring period y Statistically adjusted drop out from total population of ICS in period y ($DO_{II,G,y}$) will be determined through sampling survey by dedicated monitoring team. This will be measured every two years as per the PoA-DD. The validation team has specified the sampling plan for this parameter which is correct, feasible.
Adjustment to account for any continued use of pre-	As per table 9 of AMS.II.G v10.0, as equation 7 is

project devices during the year y (μ_y) =1 (monitored parameter)	used for calculating $B_{y,savings}$, $\mu_y=1$. Hence accepted by the validation team.										
Fraction of woody biomass that can be established as non-renewable biomass ($f_{NRB,y}$) (ex-ante parameter)	It will be determined as per the requirements of tool "Calculation of the fraction of non-renewable biomass" v2.0 ^{20/} (hereinafter referred to as FNRB tool). As per para 8 of the FNRB tool, fNRB is calculated as follows. $f_{NRB} = NRB / (NRB + RB)$ where NRB -Quantity of non-renewable biomass in the country/region or project area RB - Quantity of renewable biomass in the country/region or project area As per para 16 of the tool, the value of fNRB for the country/region or project area shall be calculated ex ante i.e fNRB value is determined once at the validation stage, thus no monitoring and recalculation of the fNRB value during the crediting period is required. As per the CPA-DD, it will be determined for every CPA before validation. This is in line with para 44¶ 45 of AMS.II.G v10.0.										
Quantity of non-renewable biomass in the country/region or project area (NRB)	As per para 9 of the tool, on a country- or region-specific basis, quantity of NRB shall be determined by calculating the total consumption of wood (H) in the country or region and then deducting the quantity of renewable biomass (RB) from it. $NRB = H - RB$ Where H-Total annual consumption of wood in the absence of the project activity in the country/region/project area RB - Quantity of renewable biomass in the country/region or project area As per para 10 of the tool, on a project-specific basis, a value of fNRB can be derived by calculating the total woody biomass consumption used in the absence of the project activity and estimating the potential supply of renewable biomass (RB) $NRB = B_{old,total} - RB$ Where $B_{old,total}$ -Total annual consumption of wood in the project area in the absence of the project activity CME preferred to calculate based on region. The validation of the same is detailed below.										
Total annual consumption of wood in the absence of the project activity in the country/region/project area (H) <table border="1"> <tr> <td>Type of wood</td><td>Wood consumed in West Bengal</td></tr> <tr> <td>Fuelwood</td><td>2,519,000 tonnes per year</td></tr> <tr> <td>Fodder (hay straw)</td><td>21,209,000 tonnes per year</td></tr> <tr> <td>Bamboo</td><td>45,470 tonnes per year</td></tr> <tr> <td>Small timber –mass with wood density =0.72 tonne per m³ as</td><td>134,946 m³ per year or 97,000 tonnes per year</td></tr> </table>	Type of wood	Wood consumed in West Bengal	Fuelwood	2,519,000 tonnes per year	Fodder (hay straw)	21,209,000 tonnes per year	Bamboo	45,470 tonnes per year	Small timber –mass with wood density =0.72 tonne per m ³ as	134,946 m ³ per year or 97,000 tonnes per year	As per para 11 of the tool, overall consumption of woody biomass will be estimated, using one of the following options: (a) Official statistics or reports or peer-reviewed literature; (b) Based on the number of households and other consumers of woody biomass in the country or region (H) or project area as per the procedure in paragraph 12 or 13 below. As per para 12 of the tool, H is calculated using equation (4), accounting for all consumption within the country/region (not only wood fuel but also timber and industrial consumption). $H = HW_{region} \times N_{region} + TI_{region}$
Type of wood	Wood consumed in West Bengal										
Fuelwood	2,519,000 tonnes per year										
Fodder (hay straw)	21,209,000 tonnes per year										
Bamboo	45,470 tonnes per year										
Small timber –mass with wood density =0.72 tonne per m ³ as	134,946 m ³ per year or 97,000 tonnes per year										

per 2006 IPCC value		Where HW _{region} -Average household wood fuel consumption, including fuelwood and charcoal in the country or region N _{region} – Number of households consuming wood fuel for thermal applications within the country/region TI _{region} – Non-domestic woody biomass consumption for energy applications (e.g. commercial, industrial or institutional uses of wood in ovens, boilers etc.) and all woody biomass consumption for non-energy applications (e.g. construction, furniture) that are extracted from forests or land areas in the country/region for which the estimate of fNRB is to be made But CME preferred to use para 11a to determine H. CME used India State of Forest Report ^{/21/} dated 2019. The validation team has reviewed the document and accepted the same as correct.
Total	23.87 Million tonnes per year	
Renewable biomass in the country/ region/project area (RB)		As per para 15 of the tool, renewable biomass in the country/region/project area is estimated using the equation below. $RB = \sum (MAI_{forest,i} \times (F_{forest,i} - P_{forest,i})) + \sum (MAI_{other,i} \times (F_{other,i} - P_{other,i}))$ Where MAI _{forest,i} -Mean Annual Increment of woody biomass growth per hectare in sub-category <i>i</i> of forest areas F _{forest,i} -Extent of forest in sub-category <i>i</i> P _{forest,i} -Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas MAI _{other,i} -Mean Annual Increment of woody biomass growth per hectare in sub-category <i>i</i> of other wooded land areas F _{other,i} -Extent of other wooded land in sub-category <i>i</i> P _{other,i} -Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within other wooded land areas The validation of the same is detailed below.
Mean Annual Increment of woody biomass growth per hectare in sub-category <i>i</i> of forest areas (MAI _{forest,i})		As per table 4 of the tool, this parameter is determined using one of following a) Global Forest Resources Assessment 2000 by the FAO for “Distribution of total forest area by ecological zone” (Table 14); and/or b) 2006 IPCC Guidelines for National Greenhouse Gas Inventories for “Above-ground biomass growth rates (t/ha-yr) for different ecological zones” (Chapter 4, Table 4.9). Use a weighted average based on the forest area of two different age categories (i.e. above and below 20 years), if such data is available. Otherwise, use a simple average of the two age categories; c) National studies or government data or official statistics. The most recent available data shall be used. However, the vintage of the above data shall not be before year 2000. CME used 2006 IPCC data ^{/21/} hence accepted by the validation team.
Sub-category <i>i</i> of forest areas	MAI _{forest,i}	
Rain forest	4.6 t/ha/year	
Moist	5.5 t/ha/year	
Dry	3.8 t/ha/year	
Shrub	3.2 t/ha/year	
Mountain	1.9 t/ha/year	
Subtropical	1.9 t/ha/year	
Extent of forest in sub-category <i>i</i> (F _{forest,i})		As per table 5 of the tool, this parameter is

<table border="1"> <tr> <th>Sub-category <i>i</i> of forest areas</th><th>$F_{\text{forest},i}$</th></tr> <tr> <td>Rain forest</td><td>13%</td></tr> <tr> <td>Moist</td><td>11%</td></tr> <tr> <td>Dry</td><td>56%</td></tr> <tr> <td>Shrub</td><td>9%</td></tr> <tr> <td>Mountain</td><td>7%</td></tr> <tr> <td>Subtropical</td><td>5%</td></tr> <tr> <td>Total</td><td>100%</td></tr> </table> Forest cover =1,173,000 ha	Sub-category <i>i</i> of forest areas	$F_{\text{forest},i}$	Rain forest	13%	Moist	11%	Dry	56%	Shrub	9%	Mountain	7%	Subtropical	5%	Total	100%	determined using one of the following. a) Global Forest Resources Assessment 2015 by the Food and Agriculture Organization of the United Nations (FAO); b) Official statistics; c) Project-specific survey data If the value of fNRB is calculated for a project area for the year “y”, and during this year a decrease in the forest area is projected to occur, the extent of the forest area available to provide woody biomass to the users can correspond to the forest area (hectares) at the beginning of the year “y”, or the average of the values of the forest area at the beginning and at the end of the year “y” CME used FAO data^{/21/} to calculate the value.
Sub-category <i>i</i> of forest areas	$F_{\text{forest},i}$																
Rain forest	13%																
Moist	11%																
Dry	56%																
Shrub	9%																
Mountain	7%																
Subtropical	5%																
Total	100%																
Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas ($P_{\text{forest},i}$)= 377,200 ha	As per table 6 of the tool, this parameter is determined using one of the following. a) Global Forest Resources Assessment 2015 by the Food and Agriculture Organization of the United Nations (FAO) b) National studies or government data or official statistics. The most recent available data shall be used. To define “geographically remote area”, DNAs/PPs may consider proximity to roads or rivers. For example, forests/other wooded lands that are beyond the average distance travelled to collect firewood can be considered non-accessible. The information of the average travel distance may be sourced from national studies or peer-reviewed literature, or surveys in the project area. CME used FAO data^{/21/} to calculate the value																
Mean Annual Increment of woody biomass growth per hectare in sub-category <i>i</i> of other wooded land areas ($MAI_{\text{other},i}$) =0	As per table 4 of the tool, this parameter is determined using one of following a) Global Forest Resources Assessment 2000 by the FAO for “Distribution of total forest area by ecological zone” (Table 14); and/or b) 2006 IPCC Guidelines for National Greenhouse Gas Inventories for “Above-ground biomass growth rates (t/ha-yr) for different ecological zones” (Chapter 4, Table 4.9). Use a weighted average based on the forest area of two different age categories (i.e. above and below 20 years), if such data is available. Otherwise, use a simple average of the two age categories; c) National studies or government data or official statistics. However, $MAI_{\text{other},i} = 0$																
Extent of other wooded land in sub-category <i>i</i> ($F_{\text{other},i}$) =0%	As per table 5 of the tool, this parameter is determined using one of the following. a) Global Forest Resources Assessment 2015 by the Food and Agriculture Organization of the United Nations (FAO); b) Official statistics; c) Project-specific survey data If the value of fNRB is calculated for a project area for the year “y”, and during this year a decrease in the forest area is projected to occur, the extent of the forest area available to provide woody biomass to																

	the users can correspond to the forest area (hectares) at the beginning of the year “y”, or the average of the values of the forest area at the beginning and at the end of the year “y” However, $F_{other,l} = 0$
Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within other wooded land areas ($P_{other,i} = 0\%$)	As per table 6 of the tool, this parameter is determined using one of the following. a) Global Forest Resources Assessment 2015 by the Food and Agriculture Organization of the United Nations (FAO) b) National studies or government data or official statistics. The most recent available data shall be used. To define “geographically remote area”, DNAs/PPs may consider proximity to roads or rivers. For example, forests/other wooded lands that are beyond the average distance travelled to collect firewood can be considered non-accessible. The information of the average travel distance may be sourced from national studies or peer-reviewed literature, or surveys in the project area However, $P_{other,l} = 0\%$
Renewable biomass in the country/ region/project area (RB) =3.06 Million tonnes per year	As per para 15 of the tool, renewable biomass in the country/region/project area is estimated using the equation below. $RB = \sum (MAI_{forest,i} \times (F_{forest,i} - P_{forest,i})) + \sum (MAI_{other,i} \times (F_{other,i} - P_{other,i}))$ Where $MAI_{forest,i}$ -Mean Annual Increment of woody biomass growth per hectare in sub-category i of forest areas $F_{forest,i}$ -Extent of forest in sub-category i $P_{forest,i}$ -Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas $MAI_{other,i}$ -Mean Annual Increment of woody biomass growth per hectare in sub-category i of other wooded land areas $F_{other,i}$ -Extent of other wooded land in sub-category i $P_{other,i}$ -Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within other wooded land areas The validation of the same is detailed below.
Quantity of non-renewable biomass in the country/region or project area (NRB)=20.81 Million tonnes per year	As per para 9 of the tool, on a country- or region-specific basis, quantity of NRB shall be determined by calculating the total consumption of wood (H) in the country or region and then deducting the quantity of renewable biomass (RB) from it. $NRB = H - RB$ As per para 10 of the tool, on a project-specific basis, a value of fNRB can be derived by calculating the total woody biomass consumption used in the absence of the project activity and estimating the potential supply of renewable biomass (RB) $NRB = B_{old,total} - RB$
Fraction of woody biomass that can be established as non-renewable biomass ($f_{NRB,y} = 87.81\%$) (ex-ante parameter)	As per para 8 of the FNRB tool, fNRB is calculated as follows. $f_{NRB} = NRB / (NRB + RB)$

Net calorific value of the non-renewable woody biomass that is substituted (NCV_{biomass}) = 0.0156 TJ/tonne of wood (ex-ante parameter)	It is sourced from para 22/equation 2 of AMS.II.G. Hence accepted.
Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers ($EF_{\text{projected_fossil_fuel}}$) = 63.7 tCO ₂ /TJ	It is sourced from para 22/equation 2 of AMS.II.G. Hence accepted.
Emission reductions by project device of type i and batch j during year y ($ER_{y,i,j}$) = 2.64 tonnes per year	As per equation 2 of AMS.II.G v10.0, $ER_{y,i,j} = B_{y,\text{savings},i,y} \times N_{y,i,j} \times \mu_y \times f_{\text{NRB},y} \times NCV_{\text{biomass}} \times EF_{\text{projected fossil fuel}}$
Leakage emissions per year (LE_y) = 0.13 tonnes per year	As per para 34 of AMS.II.G v10.0, Leakage related to the non-renewable woody biomass saved by the project activity shall be assessed based on ex post surveys of users and the areas from which this woody biomass is sourced. Alternatively, $B_{y,\text{savings},i,y}$ is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required. As per para 43 of AMS.II.G v10.0, $B_{y,\text{savings},i,y}$ is multiplied by a net to gross adjustment factor of 0.95 to account for leakages. As per para 35, Project activities switching from baseline device using firewood to efficient project device using charcoal or switching from firewood to efficient project device using processed biomass (briquette, pellets, and woodchips) shall take into account the leakage effects related to the charcoal or processed biomass production. Since this is not the case in this CPA, leakage from this source is zero.
Emission reductions by project device of type i and batch j during year y ($ER_{y,i,j}$) = 608,055 tCO _{2e} per year (average) Emission reductions by project device of type i and batch j during year y ($ER_{y,i,j}$) = 2.50 tonnes per cookstove per year	As per equation 2 of AMS.II.G v10.0 can be written as $ER_{y,i,j} = B_{y,\text{savings},i,y} \times 0.95 \times N_{y,i,j} \times \mu_y \times f_{\text{NRB},y} \times NCV_{\text{biomass}} \times EF_{\text{projected fossil fuel}}$
Rated thermal capacity as per manufacturer specification (ex-ante parameter)	This is sourced from technical specification ^{18/18} of project cookstove. Hence accepted.
Number of hours of utilization of the device during the year y (monitoring parameter)	As per table 10 of AMS.II.G v10.0, this parameter is monitored at least once in every two years. The biennial survey shall follow a 95 per cent confidence interval and a 10 per cent margin of error.
Life span	As per table 18 of AMS.II.G v10.0, since option 3 is chosen by the CME for determining $B_{y,\text{savings},y}$, the operating life time of the project device. should be monitored. Hence accepted.
Date of commissioning of batch j	As per table 19 of AMS.II.G v10.0, to establish the date of commissioning, the CME may opt 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. Hence accepted.
Date of commissioning of project device i	It is determined at the time of sale of project cookstove. It is fixed and recorded at the time of distribution of project cookstove.
Emission reduction from AMS.III. BG v3.0 component ($ER_{\text{AMS.III. BG},y}$)	As per para 21 of AMS.III.BG v3.0, for the project technology equipped with capture and destruction of

	the pyrolysis gases, including micro-gasifier, emission reductions are calculated as follows. $ER_{AMS.III.BG,y} = \sum Q_{CCP,i,y} \times [(CF \times NCV_{wood} \times NCV_{charcoal,i} / NCV_{charcoal,default} \times f_{NRB,BL,wood} \times EF_{projected_fossil\ fuel}) + (SMG_{y,b} - M_d) \times (1 - f_{NRB,BL,wood}) \times GWP_{CH_4}] - PE_{y,fugitive} - PE_{y,flaring} - PE_{FF,y} - PE_{El,y} - PE_{BC,y}$ Where $Q_{CCP,i,y}$ -Quantity of charcoal type i produced and used in year y CF-Default wood to charcoal conversion factor NCV_{wood} -Net calorific value of wood $NCV_{charcoal,i}$ -Net calorific value of the charcoal type i produced during the project $NCV_{charcoal,default}$ -Default net calorific value of charcoal $f_{NRB,BL,wood}$ -Fraction of biomass of type i used in the absence of the project activity that can be established as non-renewable biomass $EF_{projected_fossil\ fuel}$ -Emission factor for the substitution of non-renewable woody biomass by similar consumers $SMG_{y,b}$ -Specific methane generation for the baseline charcoal generation process in the year y M_d -Factor to account for any legal requirement for capture and destruction of methane in the charcoal production facility GWP_{CH_4} -Global warming potential of methane applicable to the crediting period $PE_{y,fugitive}$ -Fugitive emissions from operation of charcoal producing facility $PE_{y,flaring}$ -Emissions due to the flare inefficiency in the project charcoal manufacturing plant in the year y $PE_{FF,y}$ -Project emissions due to fossil fuel consumption in charcoal production facilities in year y $PE_{El,y}$ -Project emissions due to electricity consumption in charcoal production facilities in year y $PE_{BC,y}$ -Project emissions due to biomass cultivation in year y The validation of the same is detailed below.
Quantity of charcoal type i produced and used in year y ($Q_{CCP,i,y}$) = 0.34 tonnes per cookstove per year (monitored parameter)	As per table 7 of AMS.III.BG v3.0, The parameter can be monitored according to one of the following options: Option1: Direct measurement (e.g. use of a scale) of the weight of charcoal products supplied; Option 2: Calculation of the total weight of charcoal supplied; based on the total number of bags supplied and the average weight of charcoal product per bag. The weight of charcoal products per bag is determined on sample basis in accordance with the sampling standard (e.g. using systematic sampling method). Option 2 can only be used if Option 1 is not available. Charcoal generated from only woody biomass is eligible for the case of micro-gasifier As per the CPA-DD, the parameter will be monitored according to one of the following options: Option1: Direct measurement (e.g. use of a scale) of

	the weight of charcoal products supplied; at the site of the charcoal users or retailers Option 2: Calculation of the total weight of charcoal supplied; based on the total number of bags supplied (e.g. using systematic sampling method). Option 2 will only be used if Option 1 is not available. $Q_{CCP,i,y}$ will be derived from invoices/receipts of sales of charcoal generated in the CPA to charcoal users and retailers. If feasible, the weight of charcoal delivered will be indicated on invoices, requiring the availability of calibrated weighbridges or other scales. Where invoicing to charcoal buyers cannot be based on the exact weight but on the number of bags delivered, the following formula will apply: $Q_{CCP,i,y} = \text{weightbags}_{y,i} * \text{nbags}_{y,i}$ Where: $\text{weightbags}_{y,i}$ - average weight of bags of charcoal type i in period y This will be determined on sample basis in accordance with the sampling standard $\text{nbags}_{y,i}$ - total number of bags of charcoal type i in period y This will be determined based on invoices/receipts of charcoal buyers. Charcoal is sold to households, SMEs, group of households served by a charcoal market.
Default wood to charcoal conversion factor (CF) =6 (ex-ante parameter)	It is sourced from table 1 of AMS.III.BG. It is fixed for the crediting period.
Net calorific value of wood (NCV_{wood})=0.015 TJ/tonne of wood	It is sourced from table 2 of AMS.III.BG. It is fixed for the crediting period.
Net calorific value of the charcoal type i produced during the project (NCV_{charcoal})=29.5 GJ/tonne (monitored parameter)	As per table 8 of AMS.III.BG, it will be monitored through two options available to the CME. As per option 1, during the first year of the crediting period measurement on the charcoal calorific value of charcoal produced in the cookstove will be undertaken in laboratories according to relevant national/international standards. Samples will be taken monthly during one year from the stocks of charcoal collected from users before selling it to charcoal users/retailers. As per the table, in case of charcoal generated from micro gasifier, Option 1 above or option 2 in 'appendix 1 of AMS.III.BG can be used. As per option 1-deemed value, equation 1 of appendix of AMS.III.BG, for For the charcoal from coconut husks, bamboo and other purely woody source of biomass, $NCV_{\text{charcoal}} = 29.5$ GJ/tonne. Since the monitoring procedure is deemed feasible, the validation team has accepted the same.
Default net calorific value of charcoal ($NCV_{\text{charcoal,default}}$)=29.5 GJ/tonne	As per table 3, it can be determined based on appendix of AMS.III.BG. As per appendix, option 1, $NCV_{\text{charcoal,default}} = 29.5$ GJ/tonne
Fraction of woody biomass that can be established as non-renewable biomass ($f_{\text{NRB,BL,wood}}$)=87.18% (ex-ante parameter)	As per equation 1 of AMS.III.BG, it will be determined as per procedure mentioned in AMS.I.E v9.0. As per table 10 of AMS.I.E, it will be determined as per the requirements of tool

	"Calculation of the fraction of non-renewable biomass" v2.0^{16/}. As per para 8 of the tool, fNRB is calculated as follows. $fNRB = NRB / (NRB + RB)$ where NRB - Quantity of non-renewable biomass in the country/region or project area RB - Quantity of renewable biomass in the country/region or project area As per para 16 of the tool, the value of fNRB for the country/region or project area shall be calculated ex ante i.e fNRB value is determined once at the validation stage, thus no monitoring and recalculation of the fNRB value during the crediting period is required. As per the PoA-DD, it will be determined for every CPA before validation. This is in line with para 35 of AMS.I.E v9.0. This is already validated as above.
Emission factor for the substitution of non-renewable woody biomass by similar consumers ($EF_{\text{projected_fossil fuel}}$) = 81.6 tCO₂/TJ (ex-ante parameter)	It is sourced from table 4 of AMS.III.BG v3.0.
Specific methane generation for the baseline charcoal generation process in the year y ($SMG_{y,b}$) = 0.03 t_{CH₄}/t_{charcoal} (ex-ante parameter)	It is sourced from equation 1 of AMS.III.BG v3.0.
Factor to account for any legal requirement for capture and destruction of methane in the charcoal production facility (M_d) = 0 (ex-ante parameter)	As per table 6 of AMS.III.BG, for micro gasifier, it is zero.
Global warming potential of methane applicable to the crediting period (GWP_{CH_4}) = 25 tCO₂e/tCH₄ (ex-ante parameter)	CME has considered GWP of methane post 2012 as 25 which is accepted for the second commitment period which is in accordance with decision 4/CMP 7 as prescribed by the "Standard for application of the global warming potentials to CDM PA and PoA for the second commitment period of the Kyoto protocol ^{122/n} Version 1.0 (EB 69 Annex 3). Decision 4/CMP 7 refers to table 2.14 of the errata to the contribution of Working Group I to the Fourth Assessment Report of the IPCC and time horizon of 100 years.
Fugitive emissions from operation of charcoal producing facility ($PE_{\text{fugitive},y}$)	As per para 22/equation 2 of AMS.III.BG, $PE_{\text{fugitive},y} = Q_{\text{CCP},i,y} \times GWP_{CH_4} \times SMG_{y,b} \times f$ Where $Q_{\text{CCP},i,y}$ - Quantity of charcoal type <i>i</i> produced and used in year <i>y</i> GWP_{CH_4} - Global warming potential of methane applicable to the crediting period $SMG_{y,b}$ - Specific methane generation for the baseline charcoal generation process in the year <i>y</i> <i>f</i> - fraction attributed to project charcoal production technology
Quantity of charcoal type <i>i</i> produced and used in year <i>y</i> ($Q_{\text{CCP},i,y}$)	It is already validated as above
Global warming potential of methane applicable to the crediting period (GWP_{CH_4}) = 25 tCO₂e/tCH₄	It is already validated as above

Specific methane generation for the baseline charcoal generation process in the year y ($SMG_{y,b}$) $=0.03 \text{ t}_{CH_4}/\text{t}_{\text{charcoal}}$ (ex-ante parameter)	It is already validated as above
Fraction attributed to project charcoal production technology (f) =0.1 (ex-ante parameter)	As per para 22 of AMS.III.BG, f =0.1
Emissions due to the flare inefficiency in the project charcoal manufacturing plant in the year y ($PE_{\text{flaring},y}$) =0 tCO ₂ e/ year	As per para 22 of AMS.III.BG v3.0, emissions due to the flare inefficiency in the project charcoal manufacturing plant in the year y determined in accordance with the procedure provided in AMS-III.K. In case captured pyrolysis gas is gainfully used (e.g. as fuel for pre-heating the facility, or for wood drying, or used for production of heat and/or power as in the case of micro-gasifier), then it can be taken as zero.
Project emissions due to fossil fuel consumption in charcoal production facilities in year y ($PE_{FF,y}$)=0 tCO ₂ e/year	Since there will be no fossil fuel involved in the microgasifier, $PE_{FF,y}$ =0
Project emissions due to electricity consumption in charcoal production facilities in year y ($PE_{EI,y}$)=0 tCO ₂ e/year	Since there will be no electricity involved in the microgasifier, $PE_{FF,y}$ =0
Project emissions due to biomass cultivation in year y ($PE_{BC,y}$)	$PE_{BC,y}$ is not applicable since no biomass will be cultivated for charcoal production since it is produced as a by-product of daily cooking
Leakage emissions (LE_y)=0 tCO ₂ e/year	As per para 25 of AMS.III.BG v3.0, General guidance on leakage in biomass project activities v3.0 shall be followed to quantify leakages pertaining to the use of biomass residues. As per the guidance on leakage in biomass project activities, CME assumed the following 1. Biomass type is biomass from forests. 2. Activity or source =New forest The validation team has accepted the same. For this category, there are two types of emission sources that are potentially significant attributable to the project. 1. Leakage emission due to shift of pre-project activities 2. Leakage emission related to the production of biomass. Since the land was not used or land use did not change due to the implementation of the project activity, the validation team accepted that leakage due to shifts in pre-project activities is zero. Since the project did not use biomass residues for production of biomass, leakage due to production of biomass is also zero. There is no competing use of biomass relevant to the project. Hence leakage is zero.
Emission reduction from AMS.III. BG v3.0 component ($ER_{\text{AMS.III. BG},y}$)=1.76 tCO ₂ e per cookstove per year	As per para 21 of AMS.III.BG v3.0, for the project technology equipped with capture and destruction of the pyrolysis gases, including micro-gasifier, emission reductions are calculated as follows. $ER_{\text{AMS.III. BG},y} = \sum Q_{CCP,i,y} \times [(CF \times NCV_{\text{wood}} \times NCV_{\text{charcoal},i} / NCV_{\text{charcoal,default}} \times f_{\text{NRB,BL,wood}} \times$

	$EF_{\text{projected_fossil fuel}} + (SMG_{y,b} - M_d) \times (1 - f_{\text{NRB, BL, wood}}) \times GWP_{\text{CH}_4}] - PE_{v,\text{fugitive}} - PE_{v,\text{flaring}} - PE_{\text{FF},y} - PE_{\text{EI},y} - PE_{\text{BC},y}$
Emission reduction achieved by the CPA 1 (ER_y)=608,055 tCO ₂ e per year	$ER_{\text{CPA2},y} = ER_{\text{AMS.II.G}} + ER_{\text{AMS.III.BG}}$

Document information

Version	Date	Description
03.0	31 May 2019	Revision to: - Ensure consistency with version 02.0 of the “CDM validation and verification standard for programmes of activities” (CDM-EB93-A08-STAN); - Make editorial improvements.
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: component project activity, validation report		