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# Validation Report

VALIDATION OF THE CDM-PoA:  
CDM AFRICA SUSTAINABLE ENERGY PROGRAMME

AND VALIDATION OF THE SPECIFIC CDM-CPA:  
CDM Africa Sustainable Energy Programme in  
Lilongwe, Malawi CPA-001

REPORT NO. 00567BM

**10 April 2014**

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<b>Date of first issue of this report</b>	<b>Revision No. of this report</b>
30-08-2013	2.2
<b>Managing Entity (contractor):</b> C-Quest Capital Malaysia Global Stoves Limited (CQC) <sup>1</sup> Brumby Centre, Lot 42, Jalan Muhibbah, 87000 Labuan F.T., P.O. Box 80148 Malaysia	<b>Host countries:</b> Republic of Malawi and Republic of Zambia
<b>CPA Implementer:</b> Total LandCare (TLC) Green Limited P.O. Box 2440, Lilongwe Building: Total LandCare, Area 14, Plot 100 Republic of Malawi	<b>Project boundary (PoA):</b> Republic of Malawi and Republic of Zambia (for details see section '3.6.5. CPA boundary' of this report) <b>Project boundary (1<sup>st</sup> CPA):</b> Republic of Malawi <sup>2</sup>
<b>Applied Methodology / Version:</b> AMS-I.E., version 5	<b>Scope(s):</b> 1 <b>Technical Area(s):</b> 1.1
<b>First PoA-DD Version (GSP):</b> PoA-DD version date: 02-05-2013 Version No. <sup>3</sup> : 2 Starting Date of GSP 08-05-2013	<b>First CPA-DD Version (GSP):</b> CPA-DD version date: 02-05-2013 Version No.: 2 Starting Date of GSP 08-05-2013
<b>Final PoA-DD version:</b> PoA-DD version date: 30-08-2013 Version No.: 4	<b>Final CPA-DD version:</b> CPA-DD version date: 30-08-2013 Version No.: 4

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<sup>1</sup> C-Quest Capital Malaysia Global Stoves Limited is a 100% subsidiary of C-Quest Capital, LLC.

<sup>2</sup> The physical boundary of the 1<sup>st</sup> CPA is within the Republic of Malawi. It is anticipated that all ICS will be distributed in the Central Capital fuel cluster which is the City of Lilongwe.

<sup>3</sup> The previous PoA-DD (version 01, dated 25/01/2013) submitted for GSP (GSP period 09/02/2013 to 10/03/2013) did not contain the local stakeholder consultation information (in accordance with §69 of the Project Standard), thus PoA-DD together with CPA-DD were re-submitted for GSP with version 02.

The PoA-DD submitted for GSP (GSP period 01/05/2012 to 30/05/2012) included as host countries besides Malawi and Zambia as well Senegal. However, PP decided to exclude Senegal and the PoA-DD submitted for the subsequent GSP did not include Senegal as host country anymore.

### VALIDATION OPINION

TÜV SÜD has performed a validation of the aforementioned CDM programme of activity (PoA) and specific CPA. Standard auditing techniques have been used for the validation of the PoA and the specific CPA. An internal validation checklist has been prepared to conduct the validation process in a transparent and comprehensive manner.

The review of the PoA and CPA design documentation, subsequent follow-up interviews, and further verification of references have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria in the protocol. In the opinion of TÜV SÜD, the PoA and the specific CPA fulfill all relevant UNFCCC requirements for the CDM if the underlying assumptions do not change. TÜV SÜD recommends the PoA for registration by the CDM Executive Board. TÜV SÜD also recommends the specific CPA for inclusion under the PoA.

An analysis, as provided by the applied methodology, demonstrates that the proposed activity is not a likely baseline scenario. Emission reductions attributable to the activity are additional to any that would occur in the absence of the programme. Considering that the PoA will be implemented as designed, the CPAs under the same are likely to achieve emission reductions.

The validation has been performed following the requirements of the latest version of the CDM VVS and on the basis of the contractual agreement. The single purpose of this report is its use during the registration process as part of the CDM project cycle. Based on the work described in this report, nothing has come to our attention that causes us to believe that any project component or issue has not been covered by the validation process.

Pune, 10/04/2014



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Eswar Murty

Certification Body "Environment and Energy"  
TÜV SÜD South Asia Pvt Ltd

## Abbreviations

<b>AMS</b>	Approved Methodology Small scale
<b>BM</b>	Build Margin
<b>CAR</b>	Corrective Action Request
<b>CB</b>	Certification Body
<b>CDM</b>	Clean Development Mechanism
<b>CER</b>	Certified Emission Reduction
<b>CM</b>	Combined Margin
<b>CME</b>	Coordinating Managing Entity
<b>CMP</b>	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
<b>CPA</b>	Component Project Activity
<b>CPA-DD</b>	Component Project Activity Design Document
<b>C-Quest Capital</b>	C-Quest Capital Malaysia Global Stoves Limited (CQC)
<b>CR</b>	Clarification Request
<b>DNA</b>	Designated National Authority
<b>DOE</b>	Designated Operational Entity
<b>EF</b>	Emission Factor
<b>EIA / EA</b>	Environmental Impact Assessment / Environmental Assessment
<b>ER</b>	Emission Reduction
<b>FAR</b>	Forward Action Request
<b>FSR</b>	Feasibility Study Report
<b>GHG</b>	GreenHouse Gas(es)
<b>GSP</b>	Global Stakeholder Consultation / Process
<b>ICS</b>	Improved Cooking Stove
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>IRL</b>	Information Reference List
<b>KP</b>	Kyoto Protocol
<b>MP</b>	Monitoring Plan
<b>NGO</b>	Non Governmental Organisation
<b>NRB</b>	Non Renewable Biomass
<b>OM</b>	Operating Margin
<b>PoA</b>	Programme of Activities
<b>PoA-DD</b>	Programme of Activities Design Document
<b>PP</b>	Project Participant
<b>TLC</b>	Total LandCare Malawi
<b>TLCG</b>	Total LandCare Green Limited
<b>TÜV SÜD</b>	TÜV SÜD South Asia Pvt Ltd
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>VVS</b>	Clean Development Mechanism Validation And Verification Standard

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# 1 INTRODUCTION

## 1.1 Objective

The objective of the validation process is to provide an independent assessment by a third party, a Designated Operational Entity (DOE), of the proposed Programme of Activities (PoA) and the Component Project Activity (CPA) against the applicable CDM requirements. The assessment involves the evaluation whether the proposed activities comply with the requirements of §37 of the CDM modalities and procedures, the applicability conditions of the selected methodology and any applicable guidance issued by the CDM Executive Board (CDM-EB).

The PoA validation is part of the PoA CDM project cycle and results in a conclusion by the executing DOE on whether or not the PoA is valid to be submitted for registration to the CDM-EB. The CPA validation is also part of the PoA CDM project cycle and results in a conclusion by the executing DOE on whether or not a CPA is valid to be included under the proposed PoA. The ultimate decision on the registration of a proposed PoA rests with the CDM-EB and the Parties involved.

## 1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM PoA, the scope is set by:

- The Kyoto Protocol, in particular §12 and modalities and procedures for the CDM;
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords);
- Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1);
- Clean Development Mechanism Validation And Verification Standard (VVS) published under <http://cdm.unfccc.int>;
- Decisions and specific guidance outlined by the EB which are published under <http://cdm.unfccc.int>;
- Guidelines for completing the CDM PoA and CPA design documents (PoA-DD and CPA-DD) and the applied CDM methodology;
- Baselines and monitoring methodologies (including GHG inventories);
- Management systems and auditing methods;
- Environmental issues relevant to the applicable sectoral scope;
- Applicable environmental and social impacts and aspects of the CDM PoA;
- Sector specific technologies and their applications;
- Current technical and operational knowledge of the specific sectoral scope and information on best practice.

The validation process is not meant to provide any form of consulting to the project participant (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for improvement of the programme design.

Once TÜV SÜD receives the design documents, it is made publicly available through a dedicated interface on the UNFCCC CDM website for global stakeholder consultation. The duration of the period for submission of comments for the global stakeholder consultation is 30 days.

## 2 VALIDATION METHODOLOGY

The information provided by the project participant(s) is assessed by applying the means of validation specified in the “Clean Development Mechanism Validation And Verification Standard” and standard auditing techniques. In the absence of specific means of validation specified in the VVS, the standard auditing techniques are applied.

A competent team is selected for the performance of the validation prior to the start of the assessment. The team is selected to cover the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the CDM PoA and specific CPA. Once the program is made available for the stakeholder consultation process, members of the team carry out the desk review, follow-up actions, resolution of issues identified, and the preparation of the validation report. The prepared validation report and other supporting documents then undergo an internal quality control by the CB “Environment and Energy” before being submitted to the CDM-EB.

In case the validation team identifies issues that require further elaboration, research or expansion in order to determine whether the activities meet the CDM requirements, and whether the CPAs under the same PoA can achieve credible emission reductions, findings are raised as specified in the VVS.

All corrective action and clarification requests shall be closed out in order to submit the request for registration for this PoA.

All requests are listed in annex 1 of this validation report including the responses provided by the project participant(s) as well as the means of validation of these responses and any references to any resulting changes in the design documents or supporting annexes.

### 2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment, TÜV SÜD composed a project team in accordance with the appointment rules of the TÜV SÜD Certification body “Environment and Energy”.

The composition of an assessment team has to be approved by the Certification Body (CB) to assure that the required skills are covered by the team. The CB TÜV SÜD operates the following qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL);
- Validator (V);
- Validator Trainee (T);
- Technical Experts (TE);
- Country expert (CE);
- Technical review (TR).

It is required that the sectoral scope(s) and the technical area(s) (TA) linked to the methodology and project has to be covered by the assessment team. A technical review is conducted to perform a check on quality and completeness. Appointment certificates are attached to this report in Annex 3.

**Assessment Team:**

Name	Qualification	Coverage of scope	Coverage of technical area	Coverage of financial aspect	Host country experience	Conducted On-site visit
Karin Wagner <sup>4</sup>	ATL	<input checked="" type="checkbox"/>	-	N/A	<input checked="" type="checkbox"/>	-
Johann Thaler <sup>5</sup>	V	<input checked="" type="checkbox"/>	-	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Roberto Beducci	TE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <sup>6</sup>

**Technical Reviewer:**

Name	Qualification	Coverage of scope	Coverage of technical area	Coverage of financial aspect
Robert Mitterwallner	TR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A

Appointment certificates are attached to this report in Annex 3.

## 2.2 Review of Documents

The GSP-DDs and additional background documents related to the PoA and specific CPA design and baseline have been reviewed to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources was performed as an initial step of the validation process. A complete list of all documents and evidences reviewed is attached as annex 2 to this report.

## 2.3 Follow-up Interviews

Following VVS §22 (b), follow-up actions were conducted as part of an on-site assessment and relevant telephone communication / interviews with project participants and relevant stakeholders in particular for the technical information of the project activity. From 18/05/2013 to 23/05/2013, TÜV SÜD performed a physical site inspection and interviews with project stakeholders to confirm relevant information and to resolve issues identified in the first document review. A list of all persons interviewed in this process is presented in annex 2 to this report.

The follow-up actions performed by the technical expert (Mr. Roberto Beducci) included interviews by phone with project owner, project participants and relevant stakeholders as well as further cross-checks where it could be ensured that no relevant information has been omitted and that the information provided in the project documents was technical correct. Therefore, it is confirmed that the requirements of VVS §22 regarding the means of validation were fulfilled during the validation activities of this project.

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<sup>4</sup> Karin Wagner took over the status as ATL from Bhai Raja Maharjan during the validation process since Bhai Raja Maharjan left TÜV SÜD.

<sup>5</sup> Johann Thaler, left TÜV SÜD. He was appointed verifier.

<sup>6</sup> Due to visa constraints for the country of Malawi, Mr. Roberto Beducci was, in last moment, not able to join the other team members for performing the on-site visit. However, considering the information provided by the project documents (at the desk review stage) and further confirmed by Mr. Johann Thaler (validator on-site) during the site visit, the project was not implemented and no additional technical features/information besides the one already provided by the project documentation was possible to be assessed on-site.

## 2.4 Cross-check

During the validation process the team has made reference to available information related to similar projects (like registered PoAs Ref. N° 7359) or technologies as described in the CDM PoA and CPA. Project documentation has also been reviewed against the approved methodology applied to confirm the appropriateness of formulae and correctness of calculations.

## 2.5 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions (CAR), clarifications (CR), and any other outstanding issues which need to be clarified for TÜV SÜD's conclusion on the PoA and CPA design. The CARs and CRs raised by TÜV SÜD are resolved during communication between the managing entity, the CPA implementer and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are documented in more detail in annex 1 to this report.

## 2.6 Internal Quality Control

Internal quality control within the team is assured by means of a technical review process that takes place after the on-site assessment and after the closure of findings. The internal quality control in the validation process is given by the final decision (Validation Opinion) made by the CB "Environment and Energy".

### 3 REPORTING REQUIREMENTS

The assessment work and the main results are described below in accordance with the CDM Validation and Verification Standard (VVS). The reference documents indicated in this report are stated in annex 2 of this report.

#### 3.1 Global stakeholder consultation

<b>Comment submitted by:</b> No comments submitted during Global Stakeholder Consultation Process	<b>Date:</b> -
<b>Issue raised:</b> N/A	
<b>Actions taken due account of the comment:</b> N/A	
<b>Final conclusion:</b> N/A	

#### 3.2 Approval, Authorization and Contribution to sustainable development

Party / DNA	Authorized Project Participant(s)
Republic of Malawi / Environmental Affairs Department	'Total Land Care (TLC) Malawi' and 'C-Quest Capital Malaysia Global Stoves Limited' <sup>7</sup>

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<sup>7</sup> The Host Country Letter of Approval issued by the DNA of Republic of Malawi authorises as well C-Quest Capital Malaysia Global Stoves Limited as project participant, however the PoA-DD does not mention for C-Quest Capital the party 'Republic of Malawi' since the party 'Sweden' is already mentioned for C-Quest Capital. This is deemed to be appropriate and sufficient in the opinion of the DOE.

The Party issued a LoA (IRL 101).

The Party's DNA is included in the list available on the UNFCCC CDM.

The project participants mentioned above have been authorized by the aforementioned DNA.

TÜV SÜD received the LoA from C-Quest Capital and has confirmed authenticity by verifying the Email communication between C-Quest Capital and the DNA of Malawi (IRL 101).

The **host Party's** DNA has confirmed the contribution of the project to the sustainable development of the host Party.

The letter also indicates that the participating Party is a Party to the Kyoto Protocol, and that the participation in the above mentioned PoA is voluntary. In addition, the letter also confirms that the proposed PoA contributes to the sustainable development of the Republic of Malawi (host country). After checking the provided LoA, TÜV SÜD confirms that the letter refers to the precise proposed PoA title in line with the title in the PoA-DD submitted for registration. Based on the information given in the letter, TÜV SÜD considers the approval as unconditional with respect to these items. The LoA was issued by the Party's DNA and is valid for the proposed PoA. The LoA does not refer to a specific version of the validation report or PoA-DD.

In summary, TÜV SÜD considers the § 39 – 42 of the VVS as met.

Party / DNA	Authorized Project Participant(s)
Republic of Zambia / Ministry of Lands, Natural Resources and Environmental Protection	'Total Land Care (TLC), Zambia'
<p>The Party issued a LoA (IRL 102).</p> <p>The Party's DNA is included in the list available on the UNFCCC CDM.</p> <p>The project participant mentioned above has been authorized by the aforementioned DNA.</p> <p>TÜV SÜD received the LoA from C-Quest Capital and has confirmed authenticity by verifying the Email communication between C-Quest Capital and the DNA of Zambia (IRL 102).</p> <p>The <b>host Party's</b> DNA has confirmed the contribution of the project to the sustainable development of the host Party.</p> <p>The letter also indicates that the participating Party is a Party to the Kyoto Protocol, and that the participation in the above mentioned PoA is voluntary. In addition, the letter also confirms that the proposed PoA contributes to the sustainable development of the Republic of Zambia (host country). After checking the provided LoA, TÜV SÜD confirms that the letter refers to the precise proposed PoA title in line with the title in the PoA-DD submitted for registration. Based on the information given in the letter, TÜV SÜD considers the approval as unconditional with respect to these items. The LoA was issued by the Party's DNA and is valid for the proposed PoA. The LoA does not refer to a specific version of the validation report or PoA-DD.</p> <p>In summary, TÜV SÜD considers the § 39 – 42 of the VVS as met.</p>	

Party / DNA	Authorized Project Participant(s)
Sweden / Swedish Energy Agency	'C-Quest Capital Malaysia Global Stoves Limited' as project participant

The Party issued a LoA (IRL 103).

The Party's DNA is included in the list available on the UNFCCC CDM.

The project participant mentioned above has been authorized by the aforementioned DNA.

TÜV SÜD received the LoA from C-Quest Capital and has confirmed authenticity by verifying the Email communication between C-Quest Capital and the DNA of Sweden (IRL 103).

The letter also indicates that the participating Party is a Party to the Kyoto Protocol, and that the participation in the above mentioned PoA is voluntary.

After checking the provided LoA, TÜV SÜD confirms that the letter refers to the precise proposed PoA title in line with the title in the PoA-DD submitted for registration. Based on the information given in the letter, TÜV SÜD considers the approval as unconditional with respect to these items.

The LoA was issued by the Party's DNA and is valid for the proposed PoA. The LoA does not refer to a specific version of the validation report or PoA-DD.

In summary, TÜV SÜD considers the § 39 – 42 of the VVS as met.

### 3.3 Modalities of Communications

TÜV SÜD used written confirmation from the CME (IRL 99) to perform due diligence on the Modalities of Communication (MoC) statement (IRL 54). The written confirmation from the CME that submits to it the MoC statement confirms that all corporate and personal details, including specimen signatures, are valid and accurate.

TÜV SÜD confirms that the MoC statement complies with all relevant forms and requirements as

- the latest version of the form "Modalities of Communication statement" (F-CDM-MOC) has been used
- the information required as per the F-CDM-MOC, including its annex 1, is correctly completed
- the project participant's authorized signatories signing the F-CDM-MOC correspond to the project participant's authorized signatories included in F-CDM-MOC, annex 1.

The closure of CARs/CRs/FARs/Stakeholder consultation performed in the validation cycle is reflected in the table below to comply with the requirement of §147 (c), VVS:

Subject	Web-hosted PoA-DD	Final PoA-DD	Assessment and reason of acceptance
Additionality / Eligibility Criteria: (Benchmark / input values/ analysis type/ project start date/ IRR or NPV values etc.)	B.2. Eligibility criteria for inclusion of a CPA in the PoA: The eligibility criteria are not fully clear and complete.	Section B.2 has been revised accordingly, the criteria are deemed to be complete, accurate and transparent.	For a detailed assessment please refer to Annex 1, CAR1.
CER calculations (formula applied/	B.6.3. Ex-ante calculations of	Section B.6.3 and B.7.1.	For a detailed assessment please refer to Annex 1, CAR2.

Subject	Web-hosted PoA-DD	Final PoA-DD	Assessment and reason of acceptance
amount of emission reduction)	emission reductions and B.7.1. Data and parameters to be monitored by each generic CPA: the information regarding the choice of options and data related to the CER calculation is not complete.	have been revised accordingly, the information and chosen parameters are deemed to be appropriate and transparent.	
Monitoring / Sampling:	B.7. Application of the monitoring methodology and description of the monitoring plan: the information regarding the monitoring and sampling plan is not complete, transparent and consistent.	Section B.7 has been revised accordingly, the information is now deemed to be in line with the underlying methodology and other relevant requirements.	For a detailed assessment please refer to Annex 1, CAR3.
Boundary:	A.5. Physical/ Geographical boundary of the PoA: the project boundary is not clear.	Section A.5. has been revised accordingly.	For a detailed assessment please refer to Annex 1, CAR4.
LoA/MoC	n.a.	n.a.	LoAs and MoC has been provided. For a detailed assessment please refer to Annex 1, CL1.
Template	General information; Guidelines for	Has been revised accordingly.	For a detailed assessment please refer to Annex 1, CL2.

Subject	Web-hosted PoA-DD	Final PoA-DD	Assessment and reason of acceptance
	completing the PoA-DD form for small-scale CDM PoAs		
Environmental impacts	n.a.	n.a.	For a detailed assessment please refer to Annex 1, CL3.

In opinion of TÜV SÜD the project description, as included in the PoA-DD, is accurate and complete; and it provides a correct understanding of the proposed program activity. Further this also complies with the requirement mentioned in § 29 of VVS.

### 3.4 Design Documents

The PoA-DD and the CPA-DDs are in compliance with the relevant forms and guidance as provided by UNFCCC. The most recent versions of the PoA-DD and CPA-DD forms were used. It can be further confirmed that the two parts of the PoA-DD including the first part (i.e. PoA) and the second part (i.e. generic CPA) have been filled correctly.

TÜV SÜD considers that the guidelines for the completion of the PoA-DD and CPA-DD in their most recent version have been followed. Furthermore, TÜV SÜD confirms that the latest PoA-DD and CPA-DD forms are used, hence the requirements of VVS § 62 and §63 are fulfilled.

### 3.5 Application of the selected baseline and monitoring methodology

#### 3.5.1 Applicability of the selected baseline and monitoring methodology

Compliance with each applicability condition as listed in the chosen baseline and monitoring methodology has been demonstrated.

The validation team assessed by checking the UNFCCC webpage that the baseline and monitoring methodology selected by the project participants is the valid version of those approved by the Board.

#### **Applicability criterion from AMS-I.E, version 05**

This category comprises activities to displace the use of non-renewable biomass by introducing renewable energy technologies. Examples of these technologies include, but are not limited to biogas stoves, solar cookers, passive solar homes, renewable energy based drinking water treatment technologies (e.g. sand filters followed by solar water disinfection; water boiling using renewable biomass).

#### **Information from PoA-DD (Part II. Generic CPA) and specific CPA-DD:**

The CPA will involve the introduction of cooking systems that use renewable biomass replacing the use of non-renewable biomass.

Regarding the 1st specific CPA, the business plan and management plan from the CPA implementer and Total Land Care, Malawi has been provided to evidence the supply of renewable biomass and details of the ACE stoves that will be used in the 1st CPA. The displacement of NRB is evidenced by the fNRB in the C4 EcoSolutions report, Improved Cooking Stove Programme (Malawi): Calculating the National Non-Renewable Biomass fraction (fNRB), March 2012.

#### **Assessment:**

The validator compared the actual text of the applicable version of the methodology with the infor-

mation stated in the specific CPA-DD.

It has been validated that this applicability criterion would also be covered by eligibility criterion N° 5, item 1.

For any CPA under this PoA, this shall be validated by providing evidence of the supply of renewable biomass and details of the ICS that burn this renewable biomass.

For the 1<sup>st</sup> specific CPA-DD this applicability criterion has been validated through:

1. Business plan (IRL 82) and management plan (IRL 14) from the CPA implementer and Total Land Care, Malawi delivering information that and how renewable biomass will be provided for the ICS in the CPA.
2. Technical specifications provided by the manufacturer of the HD4012 ACE stove (IRL 19). The HD4012 ACE stove is the improved cooking system using renewable biomass which is disseminated in the 1<sup>st</sup> specific CPA.
3. The displacement of NRB is evidenced by the fNRB for the Republic of Malawi determined in the report by the 3rd party C4 EcoSolutions (IRL 61) as well as the national fNRB value endorsed by the Malawian DNA and approved by the Board in EB67, Annex 22 (IRL 3).

Hence it is confirmed by the local and sectoral knowledge of the assessment team that the content of these documents is correctly quoted and interpreted in the PoA-DD and specific CPA-DD.

#### **Validation opinion:**

The documentation content is correctly quoted and interpreted in the PoA-DD and specific CPA-DD.

The applicability criterion is met by the CPA-DD.

#### **Applicability criterion from AMS-I.E, version 05**

Project participants are able to show that non-renewable biomass has been used since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.

#### **Information from PoA-DD (Part II. Generic CPA) and specific CPA-DD:**

As demonstrated in section B.2. of the generic CPA-DD, NRB has been used in Malawi and Zambia since 31 December 1989.

#### **Assessment:**

The validator compared the actual text of the applicable version of the methodology with the information stated in the specific CPA-DD.

It has been validated that this applicability criterion would also be covered by eligibility criterion N° 5, item 2.

For the 1<sup>st</sup> specific CPA-DD this applicability criterion has been validated through publicly available statistical data from FAO that show that carbon stocks are depleting in Malawi:

1. FAO Global Forest Resources Assessment 2010, Global Tables (IRL 90)
2. FAO country report Malawi (IRL 32)

The aforementioned data sources confirm that carbon stocks have been depleting in Malawi from 1973 to 1990 to 2010. These figures together with a non-renewable biomass fraction in Malawi of 0.81<sup>8</sup> leads to the conclusion that nonrenewable biomass has been used in Malawi since 1989. The same has been confirmed in interviews with end-users during DOE's on-site visit.

<sup>8</sup> The 3<sup>rd</sup> party C4EcoSolutions calculated the non-renewable biomass fraction to be 0.97 in Malawi (IRL 61), however the more conservative fNRB value as approved in EB67, Annex 22 of 0.81 is referred to and used for ER calculation purposes.

Even though the 1<sup>st</sup> CPA is not located in the Republic of Zambia, the DOE assessed whether this applicability criterion is also met for the Republic of Zambia. By assessing the following publicly available statistical data from FAO and others, the DOE confirms that carbon stocks are depleting in Zambia:

1. FAO Global Forest Resources Assessment 2010, Global Tables (IRL 90)
2. <http://rainforests.mongabay.com/deforestation/2000/Zambia.htm> (IRL 70)
3. Mulombwa, J. 1998. Woodfuel review and assessment in Zambia (IRL 40)

The aforementioned data sources confirm that carbon stocks have been depleting in Zambia from 1990 to 2010. These figures together with a non-renewable biomass fraction in Zambia of 0.81<sup>9</sup> leads to the conclusion that nonrenewable biomass has been used in Zambia since 1989.

Hence it is confirmed by the local and sectoral knowledge of the assessment team that the content of these documents is correctly quoted and interpreted in the PoA-DD and specific CPA-DD.

#### **Validation opinion:**

The documentation content is correctly quoted and interpreted in the PoA-DD and specific CPA-DD.

The applicability criterion is met by the CPA-DD.

#### **Applicability criterion from AMS-I.E, version 05**

The use of this methodology in a project activity under a programme of activities is legitimate if the following leakages are estimated and accounted for, if required on a sample basis using a 90/30 precision for the selection of samples, and accounted for:

- (a) Use of non-renewable woody biomass saved under the project activity to justify the baseline of other CDM project activities can also be a potential source of leakage. If this leakage assessment quantifies a portion of non-renewable woody biomass saved under the project activity that is then used as the baseline of other CDM project activities then Bold is adjusted to account for the quantified leakage;
- (b) Increase in the use of non-renewable woody biomass outside the project boundary to create non-renewable woody biomass baselines can also be a potential source of leakage. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass outside the project boundary then Bold is adjusted to account for the quantified leakage;
- (c) As an alternative to subparagraphs (a) and (b), Bold can be multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

#### **Information from PDD:**

The CPA will use option C and take 0.95 to account for leakages.

#### **Assessment:**

The validator compared the actual text of the applicable version of the methodology with the information stated in the specific CPA-DD.

It has been validated that this applicability criterion would also be covered by eligibility criterion N° 5, item 3.

The DOE by assessing the CPA-DD and emission reduction calculation excel spreadsheet (IRL 95) confirms the application of an adjustment factor of 0.95 to account for leakages for the 1<sup>st</sup> specific CPA.

<sup>9</sup> The 3<sup>rd</sup> party C4EcoSolutions calculated the non-renewable biomass fraction to be 0.84 in Zambia (IRL 68), however the more conservative fNRB value as approved in EB67, Annex 22 of 0.81 is referred to and used for ER calculation purposes.

**Validation opinion:**

The documentation content is correctly quoted and interpreted in the PoA-DD and specific CPA-DD.

The applicability criterion is met by the CPA-DD.

TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

**3.5.2 Baseline scenario identification and description**

The PoA-DD including the generic CPA-DD as well as the specific CPA-DD define the following baseline scenario: The baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs. In this particular project, the baseline is the avoidance of non-renewable biomass. The default emission factor of 81.6tCO<sub>2</sub>/TJ will be used.<sup>10</sup>

TÜV SÜD did following steps to assess the requirements for baseline identification:

- initial document review
- on-site visit
- view of information from similar projects and/or technologies

The baseline scenario is substantiated by the baseline fuel use surveys and additional documents mentioned in the following which all of them were verified by the DOE:

- **Malawi (firewood):** The baseline firewood consumption study (survey) (IRL 94) carried out by the 3<sup>rd</sup> party HED Malawi Consulting Ltd.<sup>11</sup> (with assistance from CAPS Msukwa and Amulike Msukwa, De Tas, Malawi) resulted in a mean baseline firewood household consumption across Malawi of 8.64 kg/stove/day (equivalent to 3.15 tonnes/stove/year). The aims of the survey were (i) to estimate the average amount of firewood used per existing stove per day (kg/stove/day) in rural households; (ii) to account for seasonal variation and multiple stove use; (iii) investigate the differences in firewood consumption between different locations (i.e. the degree of homogeneity); and (iv) investigate other factors to validate findings and inform successful implementation. The survey was carried out during May 2012 in 2 randomly selected constituencies<sup>12</sup> in again 2 randomly selected districts using probability proportional to size on the primary unit (districts). The districts may be considered representative of their regions (clusters) and together of all of rural Malawi as they have been randomly selected from two clusters each identified by literature review as relatively homogeneous in terms of firewood use and availability and together representative of the entire country.

<sup>10</sup> This is a conservative approach to determine the baseline emissions keeping in mind that the emissions factor of non-renewable biomass as per IPCC 1996 guidelines (IRL 41) is higher than the default emissions factor of fossil fuel (81.6tCO<sub>2</sub>/TJ) defined in the applied methodology and used in the emission reduction calculation. In absence of the programme, the intended beneficiaries would continue using the traditional inefficient cooking stoves, consuming high quantity of non-renewable biomass.

<sup>11</sup> HED Consulting Ltd. provides specialist advice on household and small enterprise energy for developing countries, with a focus on ICS. One of the main activities is to carry out baseline surveys and monitoring for GS and SSC CDM projects. The DOE by assessing the website <http://www.hedconsulting.com> [accessed on 05/12/2012] and due to its local and sectoral expertise concludes that HED Consulting Ltd. is a qualified company to carry out baseline studies like the one for this given PoA.

<sup>12</sup> Each constituency selected contained multiple villages.

The sampling strategy was designed in a way to be representative of any different firewood supply, firewood consumption and economic aspects<sup>13</sup> within the proposed area of dissemination of stoves (all of rural Malawi). A literature review and consultation with local partners CAPS Msukwa and Amulike Msukwa suggests that rural per capita wood consumption decreases from north to south in line with wood scarcity. While consumption is similar in the Northern and Central Regions where wood supply is adequate, consumption decreases in the Southern region where wood is relatively scarce. Based on this, the baseline area was considered in two clusters as follows: (i) Northern and Central regions of Malawi; (ii) Southern region of Malawi. Samples were taken from each cluster. No rural areas within Malawi have been excluded from the sampling frame. The sample frame consisted of households whose main fuel (i.e. more than half of cooking) was firewood but did consider as well other fuels used by these households. Besides traditional stove users as well improved cookstove users were part of the sampling frame. This is in line with the applied methodology AMS-I.E. After removal of outliers, individual household data was adjusted to account for seasonal changes in amount of firewood used and simultaneous multiple stove use. Analysis of the data collected from the two regions (clusters) concludes that there is no evidence for a statistically significant difference between them in terms of mean household firewood consumption, and that collectively they can be seen as representative of the country Malawi as a whole. An analysis of other factors, including supplementing firewood with crop residues, space heating, impact of using all of a household's firewood for weighing and comparison of results with other studies indicated that no further adjustments were required to the data.

The DOE by assessing the baseline firewood consumption study concludes that the assumptions and results are credible and appropriate and that sampling has been carried out as per UNFCCC requirements. Furthermore, the 3<sup>rd</sup> party expertise assures that the baseline study correctly reflects the actual baseline situation in the Republic of Malawi.

- **Zambia (firewood):** The baseline firewood consumption study (survey) (IRL 93) carried out by the 3<sup>rd</sup> party HED Consulting Ltd. (with assistance from Shared Value Africa, Zambia) resulted in a mean baseline household firewood consumption across Zambia of 13.90 kg/day/stove (equivalent to 5.07 tonnes/stove/year). The aims of the survey were (i) to estimate the average amount of wood fuel used per stove per day in rural households (kg/stove/day), (ii) to account for seasonal variation and multiple stove use (iii) to investigate the differences in wood fuel consumption between geographical zones (i.e. the degree of homogeneity), (iv) to gather further data to inform successful implementation. The survey was carried out in 3 zones across the country during 12/2011 to 01/2012, namely wet (areas of higher rainfall), wealthy (areas of low rainfall and higher incomes) and dry (areas of low rainfall) zones, thus the sampling strategy was designed in a way to be representative of the different climatic and economic aspects of the country. No locations with rural populations within Zambia have been excluded from the sampling frame. The sample frame consisted of households whose main fuel (i.e. more than half of cooking) was firewood but did consider as well other fuels used by these households. Besides traditional stove users as well improved cookstove users were part of the sampling frame. This is in line with the applied methodology AMS-I.E.

Prior to removal of outliers or any adjustment, the overall national baseline wood consumption was estimated at 13.70 kg/day/stove comprising 421 households in the sample. Households reporting use of logs which burned over a number of days were retained in the dataset: their consumption was

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<sup>13</sup> Climatic conditions were considered but disregarded for the purpose of clustering since no significant difference regarding climatic conditions (like e.g. precipitation) was found across the country and no evidence was found that climatic conditions (like precipitation) could affect biomass consumption in Malawi. Regarding economic aspects it has been clarified in the baseline study report that although some patterns of poverty may be discerned from regional data, these were not strong, though do corroborate the conclusions of the wood-fuel supply and consumption and the formation of two clusters (Northern/Central regions of Malawi and Southern region of Malawi).

averaged across the lifetime of the logs. Individual household data was adjusted to account for the use of multiple stoves used simultaneously, resulting in an overall decrease of 0.41 kg/day/stove to the baseline. The data was then considered by cluster, to determine whether each cluster was statistically different.

No significant difference was found in the individual cluster data meeting the confidence/precision requirements of 90/10. These data were then combined to give the concluding national baseline. The mean baseline household wood fuel consumption across the whole of Zambia is estimated by this study to be 13.90 kg/day/stove. This is 0.2 kg higher than the unadjusted mean of 13.70 kg/day/stove and 0.61 kg higher than the full data adjusted for multiple stove use. This variation is due to the removal of outliers and the fact that only a portion of total data was used to calculate this mean value. The data from a total of 240 households from the original 421 was used in a sequential approach sampling and it is demonstrated in the baseline woodfuel consumption study that the necessary confidence/precision requirements are met. Since in the beginning of the survey the variability was unknown, 421 households were sampled which resulted in oversampling. A detailed analysis of other factors, including seasonal variation in household energy behaviour, the use of charcoal, drying of cassava, and space heating, indicated all that no further adjustments were required to the data and that the estimate of mean fuel consumption is conservative. The survey concludes that there is no significant difference in mean household wood fuel consumption between these different areas of Zambia surveyed and that collectively they can be seen as representative of the country as a whole.

The DOE by assessing the baseline wood fuel consumption study concludes that the assumptions and results are credible and appropriate and that sampling has been carried out as per UNFCCC requirements. Furthermore, the 3<sup>rd</sup> party expertise assures that the baseline study correctly reflects the actual baseline situation in the Republic of Zambia.

- Zambia (charcoal):** The baseline charcoal consumption study (survey) (IRL 89) carried out by the 3<sup>rd</sup> party HED Consulting Ltd. (with assistance from Shared Value Africa, Zambia) resulted in a mean baseline household charcoal consumption across urban dry areas of 2.49 kg/day/stove (5.45 t/year in firewood equivalent) and across urban wet areas of 2.11 kg/day/stove (4.62 t/year in firewood equivalent). The aims of the survey were (i) to estimate the average amount of charcoal used per traditional stove per day in urban households, (ii) to account for seasonal variation and multiple stove use, (iii) to investigate the differences in charcoal consumption between different locations (i.e. the degree of homogeneity) and (iv) to investigate other factors to validate findings and inform successful implementation. The survey was carried out in three locations during March and April 2012. A literature review along with a consultation with Sam Bell from Shared Value Africa revealed that the baseline area (all of urban Zambia) should be considered in two clusters: wet and dry areas. Lusaka was treated as an additional cluster in its own right; in each of the wet and dry areas one city with population greater than 10,000 was randomly selected using probability proportional to the population size. A small number of locations (Petauke in Eastern Province and neighbourhoods in Livingstone (Zambezi (AKA Dambwa central), Kariba, Lizuma and Akapelwa) were excluded from the sampling frame due to mainly firewood and electricity use respectively. The DOE confirms that those locations were excluded from the project boundary accordingly. The sample frame consisted of households whose main fuel (i.e. more than half of cooking) was charcoal but did consider as well other fuels used by these households. Besides traditional stove users as well improved cookstove users were part of the sampling frame. This is in line with the applied methodology AMS-I.E. A population-proportional sample was drawn from each cluster. This takes into account the different populations in each area, giving more populous areas a higher chance of being selected.

After removal of outliers, individual household data was adjusted to account for seasonal changes in amount of charcoal fuel used and simultaneous multiple stove use. By assessing the randomly sampled data for the difference between region means, the 3<sup>rd</sup> party concluded that there are two

clusters with statistically (significantly) different data, namely defined in wet and dry areas. Hence these 2 areas cannot be treated as a single homogeneous cluster. The PoA-DD correctly considers this fact in the 1st eligibility criterion requiring for a CPA a single fuel-specific geographical boundary which is defined through the targeted fuel type, fuel-consumption cluster and host country region. An analysis of other factors, including space heating and impact of using all of a household's charcoal for weighing indicated that no further adjustments were required to the data.-

- Malawi (charcoal):** The baseline charcoal consumption study (survey) (IRL 92) carried out by the 3<sup>rd</sup> party HED Malawi Consulting Ltd. (with assistance from Amulike Msukwa, Dr. Chimwemwe A.P.S. Msukwa, DeTas, Malawi) resulted in a mean baseline charcoal household consumption across urban areas of Northern Malawi of 2.59 kg/stove/day (5.67 tonnes/stove/year in firewood equivalent), across urban areas of Central Capital Malawi of 2.12 kg/stove/day (4.64 tonnes/stove/year in firewood equivalent), across urban areas of Central Smaller Settlements Malawi of 2.44 kg/stove/day (5.34 tonnes/stove/year in firewood equivalent), across urban areas of Southern Capital Malawi of 2.84 kg/stove/day (6.21 tonnes/stove/year in firewood equivalent) and across urban areas of Southern Smaller Settlements Malawi of 2.43 kg/stove/day (5.32 tonnes/stove/year in firewood equivalent). The aims of the survey were (i) to estimate the average amount of charcoal used per existing stove per day (kg/stove/day) in urban households; (ii) to account for seasonal variation and multiple stove use; (iii) investigate the differences in charcoal consumption between different locations (i.e. the degree of homogeneity); and (iv) investigate other factors to validate findings and inform successful implementation. The survey was carried out in August and September 2012 in three provincial capitals (population>100,000) and three smaller settlements (population 4,765-100,000). A literature review along with a consultation with a consultation with local partners in Malawi revealed that per capita urban consumption of charcoal increases significantly from north to south reflecting reduced wood availability and greater extent of fuel commercialization in the south, as well as between settlements of different sizes. In view of possible variation between the provinces and settlements of varying size, each of the provincial capitals (Blantyre, Lilongwe und Mzuzu) was included in the sample for this study. In addition, one randomly selected smaller settlement was included from each province, defined as having population between 4,765 and 100,000. The sampled smaller settlements may be considered representative of their clusters as they have been randomly selected from within these defined areas. The sample frame consisted of households whose main fuel (i.e. more than half of cooking) was charcoal but did consider as well other fuels used by these households. Besides traditional stove users as well improved cookstove users were part of the sampling frame. This is in line with the applied methodology AMS-I.E. No locations within urban Malawi have been excluded from the sampling frame.

After removal of outliers, individual household data was adjusted to account for seasonal changes in amount of charcoal used and simultaneous multiple stove use. Analysis of the data collected from the different study locations (clusters) concludes that except for the clusters of Northern Capital and Northern smaller settlements there is evidence for a statistically significant difference between them in terms of mean household charcoal consumption. This resulted in the following clusters with statistically significant difference: Northern areas (including Northern Capital and Northern smaller settlements), Central Capital, Central smaller settlements, Southern capital and Southern smaller settlements.

An analysis of other factors, including space heating, impact of using all of a household's charcoal for weighing indicated that no further adjustments were required to the data.

The DOE by assessing the baseline firewood consumption study concludes that the assumptions and results are credible and appropriate and that sampling has been carried out as per UNFCCC requirements. Furthermore, the 3<sup>rd</sup> party expertise assures that the baseline study correctly reflects the actual baseline situation in the Republic of Malawi.

- Malawi Demographic and Health Survey published by the National Statistical Office of Malawi (IRL 42) mentions that the predominant fuel for cooking in urban areas is charcoal (52.8%) and in rural areas firewood (94.1%).
- Zambia Demographic and Health Survey 2007 published by the Central Statistical Office of Zambia (IRL 45) indicates that the predominant fuel for cooking in urban areas is charcoal (53.1%) and in rural areas firewood (87.8%).

The sources referenced in the PoA-DD have been quoted correctly. TÜV SÜD has determined that no reasonable alternative scenario has been excluded.

Based on the validated assumptions used for project activity calculations, TÜV SÜD considers that the identified baseline scenario for the PoA is reasonable. Furthermore, the baseline scenario identified for the specific CPA is reasonable and in accordance with the PoA-DD.

Taking the definition of the baseline scenario into account, TÜV SÜD confirms that all relevant CDM requirements, including relevant and/or sectoral policies and circumstances, have been identified correctly in the project PoA-DD including the generic CPA-DD as well as the specific CPA-DD.

A verifiable description of the baseline scenario has been included in the PoA-DD.

TÜV SÜD confirms the following statements:

- (a) All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence, and can be deemed reasonable;
- (d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- (e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario, and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.
- (f) The PDD provides a description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed project activity.

### 3.5.3 Algorithms and/or formulae used to determine emission reductions

TÜV SÜD has assessed the calculations of baseline emissions and emission reductions. Corresponding calculations have been carried out for the 1<sup>st</sup> CPA based on calculation spreadsheets (IRL 95). The calculation spreadsheet template serves as well for future CPA inclusions. The parameters and equations presented in the PoA-DD, as well as other applicable documents, have been compared with the information and requirements presented in the methodology. An equation comparison has been made to ensure consistency between all the formulae presented in the PoA-DD, generic CPA-DD, calculation files and applied methodology.

The estimate of the baseline emissions and emission reductions are considered correct as the calculations have been reproduced by the audit team with the attainment of the same results.

The assumptions and data used to determine the emission reductions are listed in the PoA-DD and all the sources have been reviewed.

Based on the information reviewed it is confirmed that the sources used are correctly quoted and interpreted in the PoA-DD.

In accordance with paragraph 99(e) of VVS, all estimates of the baseline emissions can be replicated using the data and parameter values provided in the design documents.

In summary, the calculation of baseline emissions and emission reductions are considered correct and the baseline methodology has been applied correctly according to the requirements.

The following sources of information were used for crosscheck the information contained in the PDD:

Assumption / Data / References used for estimating the emission reductions in the specific CPA-DD	Value applied in specific (1st) CPA-DD	Information cross-checked by	Conclusion
Baseline (fire)wood-fuel consumption per baseline appliance per year	4.64 tonnes/stove/year	Baseline urban charcoal consumption study report, Malawi issued by HED Consulting Ltd (IRL 92). The baseline study found out that the daily charcoal consumption amounts to 2.12 kg/stove/day (4.64 tonnes/stove year in firewood equivalent) in the Central capital of Malawi (Lilongwe). It is anticipated that all stoves in the 1st CPA will be sold in the Central capital fuel specific cluster in Malawi, however this will be monitored and different values of "Baseline wood-fuel consumption per baseline appliance per year" will be applied as appropriate.	The DOE by assessing the baseline study report (IRL 92) confirms that the daily charcoal consumption in Central capital of Malawi (Lilongwe) was found out to be 2.12 kg/stove/day. This results in 4.64 tonnes/stove/year wood equivalent applying the default factor of 6 when converting charcoal to firewood. The DOE validated this conversion factor to be in line with the IPCC 1996 guidelines <sup>14</sup> (IRL 100).
Daily hours of cooking (used in the calculation)	3 hours	Baseline study report, Zambia issued	According to the best knowledge of PP and

<sup>14</sup> The IPCC 2006 guidelines do not mention any conversion factor for charcoal to firewood, hence the value from the IPCC 1996 guidelines has been used.

Assumption / Data / References used for estimating the emission reductions in the specific CPA-DD	Value applied in specific (1st) CPA-DD	Information cross-checked by	Conclusion
of the installed/rated capacity of ICS)		by HED Consulting Ltd (IRL 93). The baseline study report found out that daily hours of cooking is around 3.2 hours per day. Hence, the 3 hours applied in the ER calculation are deemed to be conservative.	DOE, no public data or survey results about daily cooking hours in Malawi are available. Since the Republic of Zambia is a neighbouring country of the Republic of Malawi, similar cooking habits can be expected, hence the data available from the baseline study in Zambia (IRL 93) is appropriate to be used. Besides, the DOE due to its local and sectoral expertise confirms that the 3 hours spent for daily cooking is a plausible value for African countries like Malawi or Zambia.
ICS thermal efficiency (used in the calculation of installed/rated capacity of ICS)	38.4%	Technical specifications (including thermal efficiency) of the HD4012 ACE stove provided by the manufacturer (IRL 19) and article from EPA (IRL 26)	US EPA applied the Water Boiling Test (WBT) protocol, version 4.0 in order to determine thermal efficiency of the HD4012 ACE stove. The WBT protocol is the commonly used approach for testing the thermal efficiency of cookstoves, hence accepted by the DOE.
Efficiency of the system being replaced (used in the calculation of the installed/rated capacity of ICS)	0.2	Baseline study report, Malawi issued by HED Consulting Ltd (IRL 92) and end-user household visits.	Since in urban Malawi stoves with improved combustion chambers are often used (the same can be verified through the Malawi urban baseline study report (IRL 92) and DOE end-user household visits), PP

Assumption / Data / References used for estimating the emission reductions in the specific CPA-DD	Value applied in specific (1st) CPA-DD	Information cross-checked by	Conclusion
			decided to conservatively apply the default value of 0.2. This is in line with paragraph 6 of the applied methodology which indicates as default values 0.10 for three stone fires or conventional systems with no improved combustion air supply or flue gas ventilation system and for other types of systems a default value of 0.2.
Non project biomass consumed in the project stove in year y ( $C_{ps,y}$ )	0.2 tonnes/year	CME self-declaration (IRL 97)	The CME declares in a signed self-declaration that the non project wood fuel consumption in the project stove is estimated to be 0.2 tonnes/year. The declaration confirms that this figure is based on expert opinion of the project participants' staff. This estimate is only used for the ex-ante calculation of emission reductions. This parameter will be monitored (sampled) later on.
Total number of stoves disseminated in year ( $N_y$ )	1 <sup>st</sup> year: 4,750 2 <sup>nd</sup> year: 6,000 3 <sup>rd</sup> year: 1,902	Implementation plan for the 1 <sup>st</sup> CPA (IRL 95) estimated by the CME and CPA implementer	The total number of stoves disseminated in the 1 <sup>st</sup> CPA is based on an estimate from the CME and CPA implementer and has been confirmed by the CME during the DOE's on-site visit. The total number of stoves

Assumption / Data / References used for estimating the emission reductions in the specific CPA-DD	Value applied in specific (1st) CPA-DD	Information cross-checked by	Conclusion
			disseminated is aligned with the threshold of 45 MW <sub>th</sub> .
Proportion of ICS still operational in year y (n <sub>y</sub> )	0.88	Interviews with the CME	According to the information provided by the CME during the DOE's on-site visit, the value of 0.88 is an estimate based on pilot studies from other cookstove projects.
fNRB (Republic of Malawi) <sup>15</sup>	81%	EB67, Annex 22	The default value as indicated in EB67, Annex 22 (IRL 3) endorsed by the DNA of Republic of Malawi and approved by the Board is applied.

The use of non-renewable biomass in the Republic of Malawi is substantiated by at least two supporting indicators (as per paragraph 7 of the applied methodology). Supporting documentation (primary data sources) regarding the indicators have been verified by the DOE. The DOE by assessing the FAO Global Forest Resources Assessment 2010, Global Tables (IRL 90) and country report Malawi (IRL 32) confirms that carbon stocks have been depleting in Malawi from 1973 to 1990 to 2010. Besides, data from the National Statistical Office of Malawi demonstrate that there is a trend showing an increase in time spent to collect firewood. The DOE by assessing the integrated household survey 2004-2005 report (IRL 72) and integrated household survey 2010-2011 report (IRL 64) confirms that the average time for collection of firewood per person in Malawi increased from 12 minutes/day (in 2004-2005) to 30 minutes/day (in 2010-2011). Furthermore, the DOE by interviewing end-users of fuel wood during the on-site field visits can confirm a clear trend showing an increase in time spent and distance travelled for gathering fuel-wood.

The DOE concludes that biomass is harvested from net non-renewable sources which is supported by at least 2 indicators as per paragraph 10 of the applied methodology.

The DOE by assessing further supporting documentation concludes, that the trends identified as per paragraph 7 of the applied methodology are not occurring due to the enforcement of local/national regulations. Although the national forest policy of Malawi from 1996 was established for the development, conservation, protection, management and sustainable use of forest and tree

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<sup>15</sup> The fNRB value for Zambia has been validated by the DOE through the 3<sup>rd</sup> party report including additional references and clarifications to that report (IRL 67 and 68) together with the calculations in an excel file (IRL 69). The calculation resulting in a figure of 0.84 for fNRB for whole Zambia is deemed to be credible and appropriate according to the submitted documents and its correctness is furthermore assured through the 3rd party expertise.

resources in the country, forest area continues to decrease permanently in Malawi according to FAO data (IRL 90). This evidences the lack of enforcement of the existing regulation. Some of the reasons for this lack of enforcement are explained in IRL 88 by the lack of budgetary resources that can facilitate the effective control, management, protection and utilisation. IRL 88 mentions that 'the low budgetary allocations by government to the Forestry Department has meant that there is little investment in forest management taking place in the plantations and consequently the rate of harvesting far exceeds that of replanting. The result is a clear deterioration of Malawi's forest estate'. A further reason mentioned in IRL 88 is the lack of human resource capacity. IRL 66 further mentions that 'some arms of the government do not take forest management regulations seriously and do not enforce laws regarding the reserve. People committing illegal, forest related offences are not punished appropriately and as such, there is little deterrent to other would-be offenders'. The non-enforcement of forestry laws is further confirmed in IRL 39. Therefore the DOE concludes, that it cannot be expected that the trends identified are occurring due to the enforcement of local/national regulations, but rather due to the result of deforestation. Hence, paragraph 9 of the applied methodology is complied with.

The use of non-renewable biomass in the Republic of Zambia is substantiated by at least two supporting indicators (as per paragraph 7 of the applied methodology). Supporting documentation (primary data sources) regarding the indicators to which are referred in the C4 EcoSolutions national report (IRL 68) have been verified by the DOE. By assessing the supporting documentation, the DOE confirms that carbon stocks are depleting in the project area as shown in survey results, studies and other information (IRL 70,90) Besides, it is confirmed that there are trends in the types of cooking fuel collected by users that indicate a scarcity of woody biomass. As per IRL 40 "The high demand for woodfuel has resulted in non-species selective cutting regimes being applied by many woodfuel producers, culminating in severe depletion of many forest ecosystems and the resultant land degradation. Since rural communities can now neither find productive land nor meet the costs for agricultural inputs, the implied situation is one that perpetuates forest destruction irrespective of tree size, species and/or quality." Furthermore, the DOE due to its local and sectoral expertise confirm a clear trend showing an increase in time spent and distance travelled for gathering fuel-wood. The DOE concludes that biomass is harvested from net non-renewable sources which is supported by at least 2 indicators as per paragraph 7 of the applied methodology.

Furthermore, the DOE by assessing Zambia Forests Act 1973 (IRL 77), Environmental Management Act 2011 (IRL 74) and Zambia National Policy on Environment 2007 (IRL 78) concludes, that the trends identified as per paragraph 7 of the applied methodology are not occurring due to the enforcement of local/national regulations. The documents clearly demonstrate that deforestation is not caused by government policies/regulations, but on the contrary, efforts are undertaken by the Zambian government to protect forest areas, to promote reforestation and afforestation activities and to support sustainable resource management and utilization of forest resources. Thus, it is demonstrated that it cannot be expected that the trends identified are occurring due to the enforcement of local/national regulations as per paragraph 9 of the applied methodology.

TÜV SÜD confirms the following statements

- (a) All assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD;
- (c) All values used in the PDD are considered reasonable in the context of the proposed project activity;
- (d) The baseline methodology and corresponding tool(s) have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;

- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD;
- (f) Any estimates for monitored data or parameter are reasonable for estimating the emission reductions in the PDD
- (g) Different options for equations and parameters are selected appropriately.
- (h) The data and parameters fixed ex-ante are conservative and appropriate.

## 3.6 Programme of activities / component project activities

### 3.6.1 Coordinating/managing entity and participants in a PoA

A clear and transparent description of the operational and management arrangement has been established by CQC Capital and is stated in the PoA-DD. The CME will develop and implement a management system that includes the following as per paragraph 19 of EB74, Annex 05.

(a) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies;

A Table in section C Management System of the PoA-DD summarizes the responsibilities of both CME and CPA implementer including the description of functions of the CME manager, project manager, CPA manager and biomass manager. Further, an overview of the competencies of CQC Capital (CME) has been provided below that table. The working experiences and educational background of CQC Capital staff as well Whave Solutions staff (consultant) have been submitted to the DOE (IRL 35). The description in the PoA-DD and submitted supporting documentation demonstrates that functions and tasks are appropriately allocated and that experienced and competent personnel are involved in the PoA.

(b) Records of arrangements for training and capacity development for personnel made available to the DOE at the time of validation of the PoA;

There are no specific training and capacity development/building records for personnel responsible for monitoring activities available at this moment since the project has not been implemented yet. However, a CME manual (IRL 38) as well a training manual (IRL 25), guidelines for the entry of data into the database (IRL 36), interviewer field guide (IRL 20) have been submitted to the DOE. Besides, section C Management System of the PoA-DD informs about training on ICS distribution and installation. The DOE verified these aforementioned documents and the PoA-DD and concludes that appropriate measures will be undertaken to ensure that personnel involved in monitoring or any other activities related to the PoA are sufficiently trained.

(c) A procedure for technical review of inclusion of CPAs made available to the DOE at the time of validation of the PoA;

The CME will undertake several activities (as mentioned in section C Management System of the PoA-DD) before a CPA is included into the PoA like

- review each CPA document and methodically go through each and every eligibility/applicability criterion of the PoA to make sure there is no doubt that the CPA meets each requirement. In cases where there is doubt, the CME will not request the upload for CPA inclusion until the requirements are met to the CME's satisfaction;
- review the ICS models that are proposed for distribution/installation under each CPA.
- review the supply of renewable biomass under each CPA.
- review database/registration procedures to ensure proper recording of the stove in line with the methodology and PoA eligibility criteria.
- review all proposed monitoring procedures to ensure they are in line with the monitoring plan in the PoA, including stove efficiency testing and confirming the new stoves are continuing to be used.
- visit during implementation each CPA region to ensure all procedures outlined in the PoA are being followed, particularly on stove registration and database updating.

The procedures for technical review of inclusion of CPAs are deemed to be appropriate in the opinion of the DOE.

(d) A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA);

Each ICS will be identified by a unique identification serial number. The serial number will start with an identifier to be able to separate the stoves from this PoA with those of other potential PoAs. The identifier that will precede each serial number will be "CQC-FS". Each stove's serial number will be entered into a database that will keep track of which stoves are in which CPA. Each CPA will have a

set of serial numbers so a project participant or verifier can easily determine that any stove identified in any household is affiliated with one (and only one) CPA. No individual serial number can be in more than one CPA, so it will not be possible for one stove to be counted in two different CPAs. Besides, when a new ICS registration card is filled out, or sent via SMS or ICT, the customer will acknowledge that he/she previously used a wood-fuel stove and is not part of any other ICS program to earn carbon credits. This will ensure that no customer will be included in a new CPA if he/she already makes part of a carbon financed ICS programme/project.

In addition, each CPA will be cross-checked with other CPAs in this PoA and with CPAs in any other PoA or in a CDM project activity operating in the respective country using the UNFCCC, the Gold Standard or any other relevant voluntary carbon schemes to ensure that the CPA is not included in any other PoA, CDM project activity or voluntary carbon project activity.

The DOE due to its local and sectoral expertise confirms that the procedures to avoid double counting are appropriate.

(e) Records and documentation control process for each CPA under the PoA;

-A record keeping system for each CPA under the PoA;

Detailed information will be collected for each customer at the time of distribution/installation of the ICS, using either electronic or paper-based means, directly by the CPA implementer's field personnel or through partner organizations or independent distributors/retailers. It is expected to have the following means of collecting end-users' information:

-The CPA implementer's field personnel, partner organizations or independent distributors/retailers will through direct contact fill in the Registration Card with users' information when distributing/installing the ICS. This is envisaged to be done manually with paper and pen, but Information and Communication technologies (ICT) (like personal digital assistant (PDA) which is a handheld device that transfers data over the internet) to increase the efficiency of data collection and data transfer may be used. The information collected by the CPA implementer (or partner organization, distributor/retailer, as appropriate) is stored locally on a CPA implementer database and all data and updates are transferred regularly to an electronic database managed by the CME. In the case that information was collected manually with paper and pen, the CPA implementer will input these hard-copy data into the electronic database. In the case that information was collected with an ICT device, there is no hard-copy and electronic data is transferred from the ICT device to the database managed by the CPA implementer.

-The users' data (as per Registration Card) may be transferred to the CPA implementer via Short Message Service (SMS) also known as a text messaging service. In this instance, the CPA implementer will provide the user with instruction on how to submit the SMS to the CPA implementer. SMS data is transferred directly to the electronic database managed by the CPA implementer and all data and updates are transferred regularly to an electronic database which is managed by the CME.

In either case, the following data will be collected in the data management system: date of adoption for use, unique ICS identification serial number, stove model, customer name, contact telephone number (if available), geographic location, retailer/distributor information (if applicable).

In case a replacement stove is being issued/sold to a customer already registered on the project database, a new registration will not be required. The replacement stove will be recorded in the project database in such a way that it is clear that the replaced stove ceases to be included in the CPA; and the replacement stove is associated with the customer's details as a new stove and serial number, and is included in the CPA as a new stove with a new serial number.

The DOE due to its sectoral and local expertise concludes that the data record keeping system is deemed to be appropriate. A CME manual (IRL 38) including a template of the registration card as well as a procedure for data collection and management has been submitted to the DOE.

-The SSC-CPA included in the PoA is not a de-bundled component of another CDM programme activity (CPA) or CDM project activity;

As per EB 54, Annex 13, paragraph 10, the CPA of a PoA is exempted from performing a debundling check If each of the independent subsystems/measures (in this specific case ICS) included

in the CPA of a PoA is no larger than 1% of the small-scale threshold defined by the methodology. As the thermal output of each of the independent subsystems (ICS) included in the CPA of a PoA is not larger than 1% of the SSC threshold (45 MW<sub>th</sub>) defined by the Project Standard, §82(c), no debundling check has to be performed. The DOE by carrying out the calculation resulting in thermal output of an ICS as % of the SSC threshold by means of the final ER calculation excel spreadsheet (IRL 95) confirms that the thermal output of the independent subsystem (ICS) is by far lower than 1% of the SSC threshold.

-The provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA;

The CME will have legal contracts put in place with CPA implementers and as appropriate with entities assisting with the implementation of the CPA. These legal contracts will clearly state that the implementation of CPA activities are subscribed to the SSC-PoA. The same has been confirmed in interviews with the CME during the DOE on-site visit.

(f) Measures for continuous improvements of the PoA management system

This has been mentioned as last item in section C Management System of the PoA-DD. It is amongst others stated that the CME will undertake an annual review of the overall PoA management system including identifying any problems with stove distribution/installation, stove use once in the homes, monitoring continued stove use and overall database maintenance. The same has been confirmed in interviews with the CME during the DOE on-site visit.

The description provided in the PoA-DD on the operational and management arrangements were confirmed based on document review and on-site interviews. As a result, it can be confirmed that the requirements of the “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities” with respect to the management system are fully met (see also VVS §186).

### 3.6.2 CPA Design Document

The proposed specific CPA was assessed by the validation team and it can be confirmed that it complies with the eligibility criteria specified in the PoA-DD. Please refer to section 3.6.9 below for a detailed assessment of the compliance with the eligibility criteria.

The means of validation of the specific CPA include a desk review as well follow-up interviews and a site visit. Hence, the requirements of §187 and §188 are considered to be fully met.

### 3.6.3 Description of a PoA/CPA

The following description of the programme as per PoA-DD has been successfully validated:

The PoA will involve the distribution of ICS on a commercial or non-commercial basis to users, communities and/or SMEs along with sources of renewable biomass enabling a fuel switch from non-renewable biomass. The purpose is to reduce greenhouse gas emissions, by reducing the use of non-renewable biomass and provide high quality improved cook stoves to users along with a reliable supply of renewable biomass.

The 1<sup>st</sup> specific CPA will disseminate pyrolysis cooking systems (ACE stoves) to Malawian households, communities and small/medium enterprises (SMEs) together with renewable biomass replacing the previously used non-renewable biomass. Total Land Care (TLC) Green Limited will be the CPA implementer. Renewable biomass in the form of wood chips, wood chunks, or other forms of processed plantation residue such as pellets (forms suitable for fuelling of the ACE stove) will be provided from plantations under the management concession of Total Land Care (TLC), Malawi.

The information presented in the PoA-DD on the programme description has been assessed for accuracy and completeness using standard auditing techniques including:

(a) Document review including

- A review of data and information;
- Cross checks between information provided in the PoA-DD, CPA-DD and information from sources other than those used including the DOE's sectoral or local expertise. In addition, independent background investigations were performed.

(b) Follow-up actions including:

- Interviews with relevant stakeholders in the host country, personnel with knowledge of the PoA/CPA design and implementation;
- Cross checks between information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted.

(c) Reference to available information relating to projects or technologies similar to the proposed PoA under validation;

It is TÜV SÜD's opinion that the project description, as included in the PoA-DD including the generic CPA-DD and the specific CPA-DD, is accurate and complete; and it provides a correct understanding of the proposed programme and the specific CPA.

After assessment of the PoA-DD including the generic CPA-DD and the specific CPA-DD that was submitted to TÜV SÜD by the CME, the assessment team confirms the framework developed for the implementation of the PoA, and defining a CPA under the PoA as per VVS §189. For a more detailed assessment of the framework including CME and participants, physical/geographical boundary, technology/measures and public funding information please refer to the sections below.

### 3.6.4 Application of Multiple Methodologies

Not applicable as the given PoA applies only one methodology, namely AMS-I.E, version 5.

### 3.6.5 Boundary for the PoA in terms of geographical area

The PoA is a voluntary coordinated action as evident from the fact that there are no mandatory regulations which mandate use of ICS in the Republic of Malawi and Republic of Zambia.

A declaration signed by C-Quest Capital (IRL 27) has been submitted to confirm that the PoA is a voluntary action.

Malawi: Even though the National Energy Policy (IRL 85) mentions that the government of Malawi will devise promotional strategies aimed at expanding the use of improved ceramic firewood stoves in poor urban households and at reducing the proportion of households using three stone cookstoves to 50% by 2020, neither mandatory targets nor mandatory implementation policies are in place by the government of Malawi according to this National Energy Policy. This is further confirmed by the Biomass Energy Strategy (IRL 73). The PP correctly states in his answer that the Malawi Biomass Energy Strategy was designed to move energy use away from traditional biomass to modern sources of energy (electricity, liquid fuels and renewables) and that less attention is paid to efficient utilization of woodfuels (by amongst others better stoves). Thus this policy is primarily devoted to substituting away from biomass energy. The fact that there are no mandatory targets or implementation policies for ICS and/or supply of renewable biomass for cooking systems formulated by the government of Malawi has been further substantiated through an interview carried out by the

DOE with the Assistant Director of the Department of Energy (under the Ministry of Energy), Malawi. He confirmed that there is no such mandatory policy or mandatory targets for the implementation of ICS.

Based on the aforementioned documents, interviews carried out by the DOE during on-site visit and the host country experience of the audit team it is confirmed that there is no mandated legal requirement for replacing traditional stoves by ICS for end users in Malawi and/or supply of renewable biomass for cooking systems.

**Zambia:** The DOE by assessing the National Energy Policy (NEP) from March 2008 (IRL 75) confirms that one of the objectives is to promote the use of efficient cook-stoves through providing innovative financing schemes designed to reduce the initial cost problem for low income households, however NEP does not indicate any obligations, mandatory targets or implementation policies formulated by the Zambian government regarding the implementation of improved cook-stoves and/or supply of renewable biomass for cooking systems. Further, there are no regulations prohibiting the continuing use of traditional stoves.

The same was confirmed by an Email from H. Zulu (Senior Energy Officer, Department of Energy) (IRL 75 [additional information]) which confirms that the National Energy Policy (2008) is the most recent policy document and that the policy document is supported by the 6<sup>th</sup> National Development Plan where there are no mandatory targets but pronouncements of what the sector may achieve over a certain time frame in promoting and rolling out of ICS.

Based on the aforementioned documents and the host country experience of the audit team it is confirmed that there is no mandated legal requirement for replacing traditional stoves by ICS for end users in Zambia and/or supply of renewable biomass for cooking systems.

The boundary of the PoA within which all CPAs are included, was assessed considering information gathered from the physical site inspection, interviews, and secondary evidence (like e.g. baseline study reports, IRL 89,92,93,94) received on the design of the PoA.

The project boundary is the physical, geographical site of the efficient systems (i.e. ICS) using renewable biomass and also the plantations in which the renewable biomass is grown. The geographical area within which all SSC-CPAs included in the SSC-PoA will be implemented are the host countries and boundaries described in Section A.5. of the PoA-DD. The boundaries will be the geographic borders of the countries included in the PoA and specific to fuel type as per the following.

GPS coordinates Republic of Malawi	
Northern Point Latitude: -9.366667° N Longitude: 33.000000° E	Western Point Latitude: -13.600000° N Longitude: 32.666667° E
Eastern Point Latitude: -14.883333° N Longitude: 35.916667° E	Southern Point Latitude: -17.133333° N Longitude: 35.283333° E

GPS coordinates Republic of Zambia	
Northern Point Latitude: -8.210000° N Longitude: 30.760000° E	Western Point Latitude: -13.000000° N Longitude: 22.000000° E
Eastern Point Latitude: -10.560000° N Longitude: 33.700000° E	Southern Point Latitude: -18.080000° N Longitude: 26.690000° E

The fuel specific geographic boundary for urban (charcoal) users in Malawi are all settlements with a population over 4,765 as defined as urban in section A.2 of the PoA-DD<sup>16</sup> separated into the following homogenous areas as identified in the baseline study (IRL 92): Northern<sup>17</sup> (Northern: Latitude:-9.366667°N, Longitude: 33.000000°E, Western: Latitude:-9.419258°N, Longitude: 32.940903°E, Southern: Latitude:-12.736801°N, Longitude: 33.657761°E, Eastern: Latitude:-11.662996°N, Longitude: 34.323578°E ), Central Capital (Northern: Latitude: -13.862747°N, Longitude: 33.747139°E, Western: Latitude:-13.930735°N, Longitude: 33.715954°E, Southern: Latitude:-14.063653°N, Longitude: 33.801441°E, Eastern: Latitude:-13.95406°N, Longitude: 33.848076°E), Central Smaller Settlements (Excluding Central Capital Northern: Latitude: -12.157486°N, Longitude: 33.858948°E, Western: Latitude:-13.600000°N, Longitude: 32.666667°E, Southern: Latitude:-15.310678°N, Longitude: 34.814758°E, Eastern: Latitude:-14.785505°N, Longitude: 34.979553°E), Southern Capital (Northern: Latitude:-15.682213°N, Longitude: 35.02676°E, Western: Latitude:-15.781682°N, Longitude: 34.952602°E, Southern: Latitude: -15.870204°N, Longitude: 35.04221°E, Eastern: Latitude: -15.787959°N, Longitude: 35.109501°E), Southern Smaller Settlements (Excluding Southern Capital Northern: Latitude:-13.517838°N, Longitude: 34.86969°E, Western: Latitude:-15.834536°N, Longitude: 34.248962°E, Southern: Latitude:-17.133333°N, Longitude: 35.283333°E, Eastern: Latitude:-14.883333°N, Longitude: 35.916667°E).

The fuel specific geographic boundary for rural (firewood) users in Malawi are all settlements with a population under 4,765 as defined as urban in section A.2 of the PoA-DD.

The fuel specific geographic boundary for urban (charcoal) users in Zambia<sup>18</sup> includes all cities with populations greater than 10,000 except for the following exclusions: Petauke in Eastern province (Northern: Latitude:-14.225949°N, Longitude: 31.331414°E, Eastern: Latitude: -14.251073°N, Longitude: 31.362133°E, Southern: Latitude: -14.27137°N, Longitude: 31.321964°E, Western: Latitude:-14.240757°N, Longitude: 31.298618°E) and neighbourhoods in Livingstone (Zambezi (AKA Dambwa Central) (Northern: Latitude:-17.854434°N, Longitude: 25.841939°E, Western: Latitude:-17.860071°N, Longitude: 25.836396°E, Southern: Latitude:-17.861950°N, Longitude: 25.847887°E,

<sup>16</sup> Urban areas in Malawi are defined as per the United Nations Demographic Yearbook as "All townships and town planning areas and all district centres". In order to increase clarity, the CME defined rural communities as areas outside of urban boundaries of towns, townships, district centres and cities of population greater than 4,765 – the lowest population number found in the classification "cities, towns, villages" as per the website (<http://www.citypopulation.de/Malawi.html> (accessed on 20/05/2013)). The DOE by assessing the United Nations Demographic Yearbook (IRL 86) confirms the appropriateness of the definition of urban and rural areas in Malawi.

<sup>17</sup> In the northern areas (Northern capital and Northern smaller settlements) there are no statistical differences as validated by the baseline study report (IRL 92) and thus can be considered as a single homogeneous cluster.

<sup>18</sup> The baseline study (survey) report Zambia for urban charcoal consumption further defines two wet areas which are defined as separate fuel specific geographic areas (Area 1: Northern: Latitude: -10.898042°N, Longitude: 24.038086°E, Western: Latitude: -12.533115°N, Longitude: 23.90625°E, Southern: Latitude: -13.496473°N, Longitude: 26.828613°E, Eastern: Latitude: -12.961736°N, Longitude: 28.630371°E, Area 2: Northern: Latitude: -9.21056°N, Longitude: 29.311523°E, Western: Latitude: -9.882275°N, Longitude: 28.630371°E, Southern: Latitude: -12.189704°N, Longitude: 29.597168°E, Eastern: Latitude: -9.968851°N, Longitude: 32.274169°E).

Eastern: Latitude:-17.857436°N, Longitude: 25.848938°E), Kariba (Northern: Latitude:-17.857416°N, Longitude: 25.850780°E, Western: Latitude: -17.859662°N, Longitude: 25.845587°E, Southern: Latitude: -17.861991°N, Longitude: 25.850952°E, Eastern: Latitude: -17.859867°N, Longitude: 25.855139°E), Lizuma (AKA Dambwa North) (Northern: Latitude: -17.836092°N, Longitude: 25.82516°E, Western: Latitude:-17.838584°N, Longitude: 25.824022°E, Southern: Latitude: -17.854434°N, Longitude: 25.839643°E, Eastern: Latitude: -17.848061°N, Longitude: 25.843077°E) and Akapelwa (Northern: Latitude: -17.840177°N, 25.85353 °E, Western: Latitude: -17.841689°N, Longitude: 25.847801°E, Southern: Latitude: -17.850043°N, Longitude: 25.860654°E, Eastern: Latitude: -17.846999°N, Longitude: 25.861473°E)).

All urban areas greater than 5,000 and less than 10,000 are excluded from the project boundary in Zambia.<sup>19</sup>

The fuel specific geographic boundary for rural (firewood) users in Zambia are all areas outside of urban areas with a population of more than 5,000 as defined as urban in section A.2 of the PoA-DD.<sup>20</sup>

The aforementioned GPS coordinates have been verified by the DOE through Google Maps print-screens submitted by the CME/consultant to the DOE together with explanations how the GPS coordinates have been determined (IRL 12 and 13). Furthermore, the DOE itself cross-checked those GPS coordinates through Google Maps.

After thorough assessment of the PoA-DD and the underlying documentation, it can be confirmed that the project participants in establishing the boundary of the PoA have taken into consideration all applicable national and/or sectoral policies and regulations within that chosen boundary. Therefore, the audit team confirms that the identified boundary, the selected sources, and gases as documented in the PoA-DD are justified for the proposed PoA (including the generic and specific CPA) and are fully in line with the requirements set by the applied methodology and the PoA-DD as per VVS §87. Furthermore, it can be confirmed that the boundary of the specific CPA<sup>21</sup> is correctly identified and in line with the underlying requirements. It could also be confirmed that the sources and gases included in the specific CPA boundary are in accordance with the above.

Emission sources, not addressed by the applied methodology and expected to contribute more than 1% of the overall expected average annual emission reductions, have not been identified.

Hence, TÜV SÜD confirms that the boundary for the PoA in terms of geographical area is accurately selected and complete in order to comply with the VVS (§§191-192).

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<sup>19</sup> The DOE by assessing the baseline study for urban Zambia (IRL 89) confirms that only areas with populations greater than 10,000 were considered, hence the PoA boundary correctly excludes urban areas with a population between 5,000 and 10,000.

<sup>20</sup> Urban areas in Zambia are defined as per the United Nations Demographic Yearbook as "Localities of 5,000 or more inhabitants, the majority of whom all depend on non-agricultural activities." (<http://unstats.un.org/unsd/demographic/products/dyb/dyb2008.htm>, accessed on 20/05/2013). There is no specific definition for rural areas in Zambia, this is considered to be all areas which are not urban. Hence rural households are those which are physically located in a non-urban area of Zambia. The DOE by assessing the United Nations Demographic Yearbook (IRL 86) confirms the appropriateness of the definition of urban and rural areas in Zambia.

<sup>21</sup> The boundary of the specific CPA (1st CPA) consists of the Republic of Malawi. It is anticipated that all ICS will be distributed in the Central Capital fuel cluster which is the City of Lilongwe (Northern Point: Latitude: -13.862000° S, Longitude: 33.748000° E, Western Point: Latitude: -13.928000° S, Longitude: 33.716000° E, Eastern Point: Latitude: -13.954000° S, Longitude: 33.849000° E, Southern Point: Latitude: -14.065000° S, Longitude: 33.802000° E).

### 3.6.6 Start Date of a PoA / CPA -

The start date of the PoA is the 08/05/2013, the date on which PoA documents were uploaded for Global Stakeholder process.<sup>22</sup>

In addition the assessment team further confirms that the start date of the CPA is not prior to the commencement of the validation of the PoA. The start date of the specific CPA is validated to be 01/09/2013 or the date of first distribution of a cooking system, whichever is later.

Hence, it can be confirmed that the start date of the specific CPA is not prior to the date the CDM-PoA-DD was first published for global stakeholder consultation (i.e. 08/05/2013). As a result, it can be confirmed that the requirement of VVS §193 is met.

### 3.6.7 Prior Consideration of the CDM

According to VVS §194, the demonstration and assessment of prior consideration of the CDM does not apply to PoAs.

### 3.6.8 Demonstration of additionality of the PoA as a whole

After thorough review of the PoA-DD and the underlying documents (IRL 28,29), it can be confirmed that the additionality was demonstrated by clearly establishing that in the absence of CDM, none of the CPAs would occur.

B.1. of the PoA-DD mentions that significant capital is required to invest in a programme which could match the achievements of this proposed PoA, including for import of technologies, developing the brand, creating the renewable fuel supply, widespread marketing, and establishing a distribution and retail network. CQC has been unable to find investors willing to provide the level of capital necessary to implement such a program without the hard-currency revenues from selling CERs. Letters of two major private investors (IRL 29) have been submitted to the DOE which confirm that they would not consider this kind of investment unless this PoA is CDM registered and generates CDM revenues. Further, a self-declaration letter from C-Quest Capital (IRL 28) confirms that the majority of the needed equity investment in the PoA and the 1st CPA is from the 2 investors who have filed investor letters (IRL 29) indicating that they would not have invested in the PoA or any CPA in the absence of CDM.

TUV SUD confirms that the proposed PoA is additional.

Since the PoA consists of one or more small-scale projects as CPAs, the eligibility criteria for the demonstration of additionality were based on the „Guidelines on the demonstration of additionality of small-scale project activities” (EB68, Annex 27).

The additionality of each CPA is demonstrated by complying with the eligibility criterion 13 („Each CPA will have a maximum capacity of 45 MW<sub>th</sub> throughout the CPA’s crediting period”), with the eligibility criterion 6 stated in the PoA-DD (CPAs must “demonstrate, as per EB68, Annex 27, clause 2(c) that the project is additional by targeting households, communities and/or SMEs and that the ICS have a rated capacity below 2.25 MW<sub>th</sub>”) and with the eligibility criterion 14 (CPAs must “ensure

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<sup>22</sup>The PoA-DD, section D.1. mentions that the start date of PoA is 26/04/2013 or the date at which the PoA was uploaded at the UNFCCC website for global stakeholder consultation (GSP), whichever is later.

2 GSP before the one starting on 08/05/2013 were carried out. The PoA-DD submitted for GSP starting on 01/05/2012 included as host countries besides Malawi and Zambia as well Senegal. Since PP decided to exclude Senegal after GSP upload, the PoA-DD together with CPA-DD were re-submitted for a subsequent GSP without including Senegal as host country.

The PoA-DD uploaded for the GSP starting on 09/02/2013 did not contain the local stakeholder consultation information (in accordance with §69 of the Project Standard), thus PoA-DD together with CPA-DD were re-submitted for GSP.

that it is not debundled as each ICS will not exceed 1% of the 45 MW<sub>th</sub> (i.e. 0.45 MW<sub>th</sub>) for a small-scale project as defined by the Project standard“).

This criterion 6 is in compliance with the "Guidelines on the demonstration of additionality of small-scale project activities" (EB68, Annex 27, version 09.0) and criterion 14 is in accordance with the "Guidelines on assessment of debundling for SSC project activities" (EB54, Annex 13, version 03).

EB68, Annex 27, version 09.0 in paragraph 2(c) states that the

*2. Documentation of barriers.....is not required for the positive list of technologies and project activity types that are defined as automatically additional for project sizes up to and including the small-scale CDM thresholds....The positive list comprises of:*

*(c) Project activities solely composed of isolated units where the users of the technology/measure are households or communities or Small and Medium Enterprises (SMEs) and where the size of each unit is no larger than 5% of the small-scale CDM thresholds;*

EB54, Annex 13, version 03 in paragraph 10 states that

*10. If each of the independent subsystems/measures (e.g., biogas digester, solar home system) included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the methodology applied, then that 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.*

The eligibility criterion 13 ensures that each CPA under the PoA will remain below the threshold of 45 MW<sub>th</sub> throughout the CPA's crediting period, eligibility criterion 14 ensures that the size of each unit will be no larger than 1% of the SSC CDM threshold, thus paragraph 10 of EB54, Annex 13 is complied with. By having a size of each unit which is not larger than 1% of the SSC CDM threshold means at the same time not to exceed 5% of the SSC threshold since 1% is more restrictive than 5%.

As a result, it can be confirmed that the requirements of the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities" with respect to the demonstration of additionality are fully met (i.e. VVS §195).

### **3.6.8.1 Identifications of alternatives**

Not applicable since the baseline scenario is prescribed in the approved methodology as 'the use of fossil fuels for meeting similar thermal energy needs'. This is in line with VVS §115.

### **3.6.8.2 Investment Analysis**

Not applicable to the proposed PoA.

### **3.6.8.3 Barrier analysis**

Not applicable to the proposed PoA.

### **3.6.8.4 Common practice analysis**

Not applicable to the proposed PoA.

### **3.6.9 Eligibility criteria for inclusion of a CPA in the PoA**

All the eligibility criteria required for the inclusion of the CPA under the PoA have been addressed in the PoA-DD including its generic CPA-DD and will be assessed for each potential CPA through the procedures described in the PoA Management System (PoA MS). The stated confirmation against each eligibility criteria has been checked and found acceptable. It can be confirmed that the criteria are verifiable, sufficiently objective as well as comprehensive. Please refer to the following sections for a detailed assessment of the individual criteria as per the "Standard for demonstration of

additionality, development of eligibility criteria and application of multiple methodologies for programme of activities" (IRL 4; further referred to as the "PoA standard").

PoA Standard requirement	Assessment and Conclusion (PoA-DD and generic CPA-DD)	Assessment and Conclusion (specific CPA-DD)
<p>The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA.</p>	<p>The criterion clearly describes that any CPA shall be implemented entirely within a single fuel-specific geographical boundary (as specified in section A.4.5 of the PoA-DD) according to the targeted fuel type, fuel-consumption cluster (if applicable), and host country region of the CPA-DD.</p> <p>Hence, it can be confirmed that the requirement of the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for PoAs" (PoA standard) with respect to this criterion is met (i.e. §14a).</p>	<p>The compliance with the eligibility criterion has been validated against the business plan (IRL 82) and CME/CPA implementer self declaration letter signed by the CME/CPA implementer<sup>23</sup>. Both documents mention as the dissemination territory for the 1<sup>st</sup> CPA urban areas of Malawi. It is anticipated that ICS will be entirely distributed in the Central Capital fuel cluster which is the City of Lilongwe.</p> <p>The compliance with the criterion was further substantiated through on-site interviews carried out by the DOE with representatives of Total Land Care Green Limited being the CPA implementer and C-Quest Capital being the CME of the PoA.</p>
<p>Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo).</p>	<p>The CME addresses this criterion by:</p> <ol style="list-style-type: none"> <li>1. Having a database that will uniquely identify and define users in which ICS have been installed or distributed. In addition, each stove itself will have to be uniquely identified with a serial number clearly starting with "CQC-FS"</li> <li>2. not involving users already involved in any other CPA or CDM project involving the distribution and/or installation of ICS.</li> <li>3. not including CPAs which are registered as individual CDM project activities or included in another registered SSC-PoA, as well as in any other voluntary scheme (such as Gold Standard,</li> </ol>	<p>1. The compliance with the eligibility criterion has been validated against the template database which was presented to the DOE (IRL 38). The database records all end-user and stove related information including a unique serial number for each ICS. The CME during DOE's on-site visit informed the DOE that the database is being implemented but has not been finalized yet, since the 1<sup>st</sup> CPA has not started distribution of ICS yet. The earliest date of ICS distribution will be 01/09/2013 or even later which has been confirmed through the self declaration letter signed by the CME/CPA implementer regarding 1<sup>st</sup> CPA (IRL 27). As per the information given by the CME during</p>

<sup>23</sup> The CME signed the self-declaration as well on behalf of the CPA implementer. The Indicative Term Sheet of TLC Green Joint Venture agreement (IRL 98) demonstrates that the CME has the voting control of TLC Green Limited and hence is deemed to be authorized to sign on behalf of the CPA implementer.

PoA Standard requirement	Assessment and Conclusion (PoA-DD and generic CPA-DD)	Assessment and Conclusion (specific CPA-DD)
	<p>VCS, VER+).</p> <p>Hence, it can be confirmed that the requirement of the PoA standard with respect to this criterion is met (i.e. §14b).</p>	<p>onsite interviews, the database will be however implemented prior to commencement of ICS distribution. The CME/CPA implementer self-declaration referring to the 1<sup>st</sup> CPA further confirms that a database will uniquely identify and define users in which ICS have been installed or distributed. Each stove will have a unique serial number clearly starting with "CQC-FS".</p> <p>2. The compliance with this eligibility criterion has been validated against CME manual (IRL 38) including a template of the registration card as well as a procedure for data collection and management. The registration card template mentions that the ICS has to acknowledge that he/she previously used a wood-fuel stove and was not part of any other ICS programme/project earning any carbon credits. Filled registration card examples of households were not available at the time of DOE validation since installation of ICS had not been started yet.</p> <p>3. The compliance with the eligibility criterion has been validated by the DOE against UNFCCC, Gold Standard website and other voluntary carbon schemes websites. The fact that the CPA is not registered as individual CDM project activity nor included in another registered PoA was further confirmed by a self-declaration signed by the CME and CPA implementer.</p>
<p>The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/ certifications.</p>	<p>All CPAs will be required to conform to national standards if such ones are available. Detailed descriptions of the ICS to be implemented will be described at CPA level. Each ICS must deliver the same or higher level of service in comparison with the baseline system being replaced. Each ICS will be required to meet the</p>	<p>The compliance with the eligibility criterion has been validated against manufacturer's specifications of the ACE stove HD4012 (IRL 19). The manufacturer's specifications were found to be consistent with the ones stated in section A.5. of the CPA-DD. There are no required testing/certifications as per the manufacturer's specifications.</p>

PoA Standard requirement	Assessment and Conclusion (PoA-DD and generic CPA-DD)	Assessment and Conclusion (specific CPA-DD)
	<p>following technical specifications of having a capacity of less than 450 kW<sub>th</sub> and being either fixed or portable. In addition the ICS must meet at least one of the following technical specifications:</p> <ul style="list-style-type: none"> <li>• Thermal efficiency of greater than 20% as determined by a Water Boiling Test.</li> <li>• Have an improved combustion chamber utilizing either the rocket stove design, insulated chamber or pyrolysis.</li> </ul> <p>Hence, it can be confirmed that the requirement of the PoA standard with respect to this criterion is met (i.e. §14c).</p>	<p>Besides, the DOE was informed in on-site interviews (by the coordinator of the National Cookstoves Task Force in Malawi and by the assistant director of the Department of Energy) that no national standards for cookstoves exist in Malawi. The thermal efficiency of 38.4% was supported by the manufacturer's specifications (IRL 19) as well as by a publication from U.S. EPA (IRL 26). The manufacturer's specifications (IRL 19) further confirm that the applied ICS in the 1<sup>st</sup> CPA provides a higher level of service (greater amount of heat energy) than the baseline systems being replaced, that the ICS is portable and that it has an improved combustion process working by pyrolysis. The ER calculation excel spreadsheet (IRL 95) indicates the calculation for the rated capacity of the ICS used in the 1<sup>st</sup> CPA which is 3.02 kW<sub>th</sub>. This is a long way below the 0.45 MW<sub>th</sub> (=450 kW<sub>th</sub>) threshold.</p>
Conditions to check the start date of the CPA through documentary evidence.	<p>Documentary evidence will be provided to justify the start date of the CPA. Further, this criterion shall be used by the DOE &amp; CME to ensure that a CPA is only eligible if its start date is after the starting date of the PoA.</p> <p>Hence, it can be confirmed that the requirement of the PoA standard with respect to this criterion is met (i.e. §14d).</p>	<p>The compliance with the eligibility criterion has been validated against self declaration letter signed by the CME/ CPA implementer regarding the 1<sup>st</sup> CPA (IRL 27). The 1<sup>st</sup> CPA has not started yet. It is expected to start installation of ICS for the 1<sup>st</sup> CPA on 01/09/2013, thus this date or the actual date of the 1<sup>st</sup> stove installation, whichever is later, shall be considered as the effective starting date of the 1<sup>st</sup> CPA. The same has been confirmed in the self declaration letter (IRL 27). The PoA database (except a template database) was not available at the time of DOE validation since distribution of ICS had not been started yet. The DOE confirms that the CPA starting date is after the start date of the PoA.</p>
Conditions that ensure	Each CPA shall comply with the	1. The compliance with the eligibility

PoA Standard requirement	Assessment and Conclusion (PoA-DD and generic CPA-DD)	Assessment and Conclusion (specific CPA-DD)
<p>compliance with applicability and other requirements of single or multiple methodologies applied by CPAs.</p>	<p>following applicability conditions set out in the applied methodology AMS-I.E, version 5:</p> <ol style="list-style-type: none"> <li>1. The activities of each CPA will displace the use of non-renewable biomass by introducing renewable energy technologies.</li> <li>2. Each CPA will show that non-renewable biomass has been used since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.</li> <li>3. In order to account for leakages, each CPA will apply the net to gross adjustment factor of 0.95 which is in line with §18(c) of the applied methodology.</li> </ol> <p>For a detailed assessment of the applicability, please refer to section 3.5.1 above.</p> <p>As a result, it can be confirmed that the requirement of the PoA standard with respect to this criterion is met (i.e. §14e).</p>	<p>criterion has been validated through:</p> <ol style="list-style-type: none"> <li>a) Business plan (IRL 82) and management plan (IRL 14) of the CPA implementer and TLC Malawi delivering information that and how renewable biomass will be provided for the ICS in the CPA.</li> <li>b) Technical specifications provided by the manufacturer of the HD4012 ACE stove (IRL 19). The HD4012 ACE stove is the improved cooking system using renewable biomass which is disseminated in the 1<sup>st</sup> specific CPA.</li> <li>c) The displacement of NRB is evidenced by the fNRB for the Republic of Malawi determined in the report by the 3rd party C4 EcoSolutions (IRL 61) as well as the national fNRB value endorsed by the Malawian DNA and approved by the Board in EB67, Annex 22 (IRL 3).</li> </ol> <p>2. The compliance with the eligibility criterion has been validated through publicly available statistical data from FAO that show that carbon stocks are depleting in Malawi:</p> <ol style="list-style-type: none"> <li>a) FAO Global Forest Resources Assessment 2010, Global Tables (IRL 90)</li> <li>b) FAO country report Malawi (IRL 32)</li> </ol> <p>The aforementioned data sources confirm that carbon stocks have been depleting in Malawi from 1973 to 1990 to 2010. These figures together with a non-renewable biomass fraction in Malawi of 0.81<sup>24</sup> leads to the conclusion that non-renewable biomass has been used in Malawi since 1989. The same has</p>

<sup>24</sup> The 3rd party C4EcoSolutions calculated the non-renewable biomass fraction to be 0.97 in Malawi (IRL 61), however the more conservative fNRB value as approved in EB67, Annex 22 of 0.81 is referred to and used for ER calculation purposes.

PoA Standard requirement	Assessment and Conclusion (PoA-DD and generic CPA-DD)	Assessment and Conclusion (specific CPA-DD)
		<p>been confirmed in interviews with end-users during DOE's on-site visit. Hence it is confirmed by the local and sectoral knowledge of the assessment team that the content of these documents is correctly quoted and interpreted in the PoA-DD and specific CPA-DD.</p> <p>3. The compliance with the eligibility criterion has been validated by assessing the specific CPA-DD and emission reduction calculation excel spreadsheet (IRL 95) which confirm the application of an adjustment factor of 0.95 to account for leakages for the 1<sup>st</sup> specific CPA.</p>
The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality.	<p>The additionality based eligibility criterion is derived from the "Guidelines on the demonstration of additionality of small-scale project activities" (EB68, Annex 27).</p> <p>Each CPA shall demonstrate, as per EB68, Annex 27 Clause 2(c) that the project is additional by targeting users, communities and/or small/medium enterprises (SMEs) and that the ICS have a rated capacity below <math>2.25\text{MW}_{\text{th}}</math> (which is equivalent to 5% of the SSC-CDM threshold as defined in clause 2(c)). The rated capacity will be further described in section A.5. of the CPA-DD.</p> <p>A documentation of barriers, as per §1 of EB68, Annex 27 is not required since the technology/project activity type in the proposed PoA belongs to the positive list and hence is defined as automatically additional up to the small-scale CDM threshold (<math>45\text{MW}_{\text{th}}</math> rated/installed capacity).</p> <p>As a result, it can be confirmed that the requirement of the PoA standard with respect to this criterion is met (i.e. §14f).</p>	<p>The compliance with the eligibility criterion has been validated against the ER calculation excel spreadsheet (IRL 95). The ER calculation excel spreadsheet indicates the calculation for the rated capacity of the ICS used in the 1<sup>st</sup> CPA which is far below the threshold of <math>2.25\text{MW}_{\text{th}}</math>. The input parameters for the calculation of the rated capacity have been taken from the baseline study reports (IRL 92,93), ICS efficiency as per the manufacturer's specifications (IRL 19), default values from IPCC and the applied methodology The DOE by assessing the formulae and calculation confirms that the calculation of the rated capacity has been correctly carried out.</p> <p>The target group (households, communities, small/medium enterprises) has been validated through the self-declaration referring to the 1<sup>st</sup> CPA signed by CME and CPA implementer.</p>
The PoA-specific re-	The local stakeholder consultation	Not applicable since the 1 <sup>st</sup> CPA is

PoA Standard requirement	Assessment and Conclusion (PoA-DD and generic CPA-DD)	Assessment and Conclusion (specific CPA-DD)
<p>quirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis.</p>	<p>has been carried out on PoA level as specified in section F of the PoA-DD, hence no further analysis will be necessary at CPA level. For further details see section 3.6.15 of this report.</p> <p>Environmental analysis has been carried out at PoA level, thus no further analysis is required at CPA level. For further details see section 3.6.14 of this report.</p> <p>However, as described in section E.1. of the PoA-DD, environmental clearance is required for CPAs in the Republic of Zambia.</p> <p>No such environmental clearance is required for CPAs implemented in the Republic of Malawi.</p> <p>As a result, it can be confirmed that the requirement of the PoA standard with respect to this criterion is met (i.e. §14g).</p>	<p>located in Malawi and no environmental clearance is required for CPAs in Malawi.</p> <p>The local stakeholder consultation has been carried out at PoA level, hence not applicable either.</p>
<p>Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance.</p>	<p>The CME/CPA implementer shall affirm that no funding is coming from Annex I parties, or if it does, that this is not a diversion of ODA.</p> <p>As a result, it can be confirmed that the requirement of the PoA standard with respect to this criterion is met (i.e. §14h).</p>	<p>The compliance with the eligibility criterion has been validated against a self declaration letter from the CME regarding no ODA funding (IRL 28) and additionally by another self-declaration letter referring to the 1<sup>st</sup> CPA signed by CME/CPA implementer (IRL 27).</p> <p>Letters from 2 major private investors (IRL 29) further substantiate the fact that the PoA in general and 1<sup>st</sup> CPA is pre-financed by private equity. One of the conditions investors require is the pay-back through carbon credits. The self-declaration letter from C-Quest Capital (IRL 28) further confirms that the majority of the needed investment in the 1<sup>st</sup> CPA is from the 2 investors who have filed investor letters (IRL 29) indicating that they would not have invested in the PoA or any CPA in the absence of CDM.</p>
<p>Where applicable, target group (e.g. domes-</p>	<p>CPAs shall involve one or more of the following distribution</p>	<p>The compliance with the eligibility criterion has been validated against</p>

PoA Standard requirement	Assessment and Conclusion (PoA-DD and generic CPA-DD)	Assessment and Conclusion (specific CPA-DD)
<p>tic/ commercial/ industrial, rural/ urban, grid-connected/ off-grid) and distribution mechanisms (e.g. direct installation).</p>	<p>mechanisms for ICS and supply channels for renewable biomass: direct installation/distribution, delivery, community sales events, direct sales or sales through commercial/retail outlets. Section C "Management System" of the PoA-DD provides details about the distribution and supply channels for ICS and renewable biomass. Furthermore, the eligibility criterion defines that the CPAs will target households, communities and/or SMEs.</p> <p>As a result, it can be confirmed that requirement of the PoA standard with respect to this criterion is met (i.e. §14i).</p>	<p>a self declaration letter referring to the 1<sup>st</sup> CPA signed by both CME and CPA implementer.</p> <p>The letter mentions amongst others "the supply of demonstrably renewable biomass and promotion, distribution and sale of affordable ICS to households, communities, small/medium enterprises on a commercial or non-commercial basis in Malawi". Furthermore, the self-declaration letter mentions the distribution mechanisms for the 1<sup>st</sup> CPA: the distribution of ICS will occur through the CPA implementer's sales team, direct distribution, community events and commercial retailers. The database was not available at the time of DOE validation since distribution of ICS had not been started yet.</p> <p>The supply of renewable biomass is moreover supported by the business plan (IRL 82), management plan (IRL 14), biomass supply procedure and Agreement between the Department of Forestry and TLC (IRL 14).</p>
<p>Where applicable, the conditions related to sampling requirements for the PoA in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities"</p>	<p>CPAs will adhere to all requirements related to sampling for a PoA in accordance with the approved sampling standard (EB74, Annex 6) and sampling guidelines (EB75, Annex 8), as further outlined in section B.7.2 of the generic CPA within the PoA-DD.</p> <p>As a result, it can be confirmed that requirement of the PoA standard with respect to this criterion is met (i.e. §14j).</p>	<p>The compliance with the eligibility criterion has been validated against section D.7.2. of the CPA-DD and a self-declaration (IRL 27) signed by CME/CPA implementer confirming that all requirements related to sampling in accordance with the approved standard and guidelines will be followed. The DOE confirms by assessing the sampling plan that all necessary requirements are being followed.</p>
<p>Where applicable, the conditions that ensure that every CPA in aggregate meets the small-scale or microscale threshold</p>	<p>Each CPA shall meet the small-scale threshold criterion as per Project Standard, §82(c). Hence, each CPA will have a maximum capacity of 45 MW<sub>th</sub> throughout the CPA's crediting period.</p>	<p>The compliance with the eligibility criterion has been validated against the ER calculation excel spreadsheet (IRL 95). The ER calculation excel spreadsheet indicates the calculation for the rated capacity of the</p>

PoA Standard requirement	Assessment and Conclusion (PoA-DD and generic CPA-DD)	Assessment and Conclusion (specific CPA-DD)
criteria and remains within those thresholds throughout the crediting period of the CPA;	As a result, it can be confirmed that requirement of the PoA standard with respect to this criterion is met (i.e. §14k).	ICS used in the 1 <sup>st</sup> CPA which is 3.02 kW <sub>th</sub> , hence a maximum of 14,920 ICS can be distributed. The input parameters for the calculation of the rated capacity have been taken from the baseline study reports (IRL 92,93), ICS efficiency as per the manufacturer's specifications (IRL 19), default values from IPCC and the applied methodology. The DOE by assessing the formulae and calculation confirms that the calculation of the rated capacity has been correctly carried out and that the 1 <sup>st</sup> CPA will not pass the threshold of 45 MW <sub>th</sub> throughout the CPA's crediting period.
Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or micro-scale project categories.	Each CPA will ensure that it is not de-bundled as each ICS will not exceed 1% of the 45 MW <sub>th</sub> threshold (i.e. 0.45 MW <sub>th</sub> ) for a small-scale project as per Project Standard, §82(c). This is in line with EB 54, Annex 13, paragraph 10, which states that the CPA of a PoA is exempted from performing a debundling check if each of the independent subsystems/measures (in this specific case ICS) included in the CPA of a PoA is no larger than 1% of the small-scale threshold defined by the methodology.	The compliance with the eligibility criterion has been validated against the ER calculation excel spreadsheet (IRL 95). The ER calculation excel spreadsheet indicates the calculation for the rated capacity of the ICS used in the 1 <sup>st</sup> CPA which is 3.02 kW <sub>th</sub> . This is a long way below the 0.45 MW <sub>th</sub> (=450 kW <sub>th</sub> ) threshold. The input parameters for the calculation of the rated capacity have been taken from the baseline study reports (IRL 92,93), ICS efficiency as per the manufacturer's specifications (IRL 19), default values from IPCC and the applied methodology. The DOE by assessing the formulae and calculation confirms that the calculation of the rated capacity has been correctly carried out and that each ICS of the 1 <sup>st</sup> CPA will not pass the threshold of 1% of the 45 MW <sub>th</sub> . By having a size of each unit which is not larger than 1% of the SSC CDM threshold means at the same time not to exceed 5% of the SSC threshold since 1% is more restrictive than 5%. Concluding, none of the ICS included into the CPA will exceed either 1% or 5% of

PoA Standard requirement	Assessment and Conclusion (PoA-DD and generic CPA-DD)	Assessment and Conclusion (specific CPA-DD)
		the SSC threshold (45 MW <sub>th</sub> ).
Others: Transfer of ownership rights of CERs	Each CPA will ensure the transfer of ownership rights of CERs from the ICS user to the CME (or any affiliate it so designates) and the precise mechanism will be established on a CPA basis. The assessment team confirms that this criterion can be transparently validated by e.g. a Registration Card, SMS, ICT or other means, which is signed or received by the end-user upon distribution or installation of the ICS, which shall state that the end-user transfers ownership of the carbon assets to the CME for the life of the stove.	The compliance with this eligibility criterion has been validated against CME manual (IRL 38) including a template of the registration card as well as a procedure for data collection and management. The registration card template mentions that the end user agrees to waive possible claims or transfer possible rights to any emission reduction generated by the ICS to the CME.
Others: Approval by the CME prior to its incorporation into the SSC-PoA	Each CPA shall be approved by the CME prior to its incorporation into the SSC-PoA.  The assessment team confirms that this criterion can be transparently validated by e.g. a declaration letter signed by the CME which approves the inclusion of the respective CPA into the PoA.	The compliance with the eligibility criterion has been validated against self declaration letter signed by the CME/CPA implementer regarding the 1 <sup>st</sup> CPA (IRL 27). The CME confirms in this letter the approval of the incorporation of the CPA into the PoA.

The managing entity employs clear and unambiguous criteria for the inclusion of the CPA. The eligibility criteria stated in the PoA-DD are verifiable with regards to the applicability of the applied methodology and EB 74 annex 5. Furthermore, the DOE confirms that the eligibility criteria are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA.

The eligibility criteria can be checked at the CPA level by the managing entity and can be confirmed by the DOE during inclusion.

Hence, TÜV SÜD considers that the eligibility criteria for inclusion of CPA in the PoA is demonstrated accurately in order to comply with the VVS §196. In addition TÜV SÜD also confirms that the generic CPA is eligible under this PoA and complies with the additionality criteria as outlined above.

### 3.6.10 Crediting period of a PoA/CPA

The assessment team confirms that the length of the PoA is 28 years; hence it is in line with VVS §197.

### 3.6.11 Monitoring plan for a PoA

The operational and management structure has been clearly described in chapters Section C “Management System” of the PoA-DD and B.7.2. of the generic CPA within the PoA-DD and is in compliance with the envisioned situation. The responsibilities and institutional arrangements for data collection and archiving has been clearly provided. The information provided in the PoA-DD could be confirmed based on the on-site interviews and also through the submitted documentary evidence (IRL 20,25,36,38). The sampling plan is discussed in detail in section 3.6.13 of this report.

### 3.6.12 Monitoring plan for a CPA

The monitoring plan presented in the CPA-DD complies with the requirements of the applicable Methodology and the PoA-DD. The assessment team has verified all parameters in the monitoring plan against the requirements of the methodology and no deviations have been found.

The procedures have been reviewed by the assessment team through document review and interviews with the relevant personnel. The information provided has allowed the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The relevant points of monitoring plan have been discussed with the CME. Specifically, these points include the monitoring methodology, data management, and the quality assurance and quality control procedures to be implemented in the context of the project. Therefore, the CME will be able to implement the monitoring plan and the achieved emission reductions can be reported ex-post and verified.

The parameters that are to be monitored ex-post are:

**$N_y$**  - Total number of stoves disseminated in year  $y$ . The unique serial number of each stove shall be logged in the project database showing the total number of stoves and all registered users. Entry of information into the database will be checked to ensure accuracy and to ensure that no double counting takes place.

**$n_y$**  - Proportion of ICS still operational in year  $y$ . Randomly selected users will be surveyed to see if their ICS is still in use. The proportion of ICS found to be still in operation will be applied to the total number of stoves distributed/installed in each CPA (according to the ICS registration records in the monitoring database and the applicable sample frame) when calculating emission reductions.

**$T_y$**  - Fraction of time in year  $y$  each ICS was installed.  $T_y$  will be determined for each individual stove in a CPA as follows:  $T_y = \text{Number of days stove installed in year } y^{25} / \text{Number of days in year } y$ . If the stove installation date is before year  $y$  then  $T_y$  will be 1.

**$C_{ps,y}$**  - Non project wood-fuel consumed in the project stove in year  $y$ . Randomly selected users will be surveyed to determine the amount of non-project wood-fuel consumed in the project stove.

**$RB_y$**  – Mass of renewable biomass consumed by the end users in year  $y$ . Randomly selected users will be surveyed to determine the mass of renewable biomass consumed by the end users or  $RB_y$  will be determined by sales records.

In summary, the parameters determined ex-post have been presented correctly according to the requirements in accordance with the applied methodology.

The sampling plan is discussed in detail in section 3.6.13 of this report.

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<sup>25</sup> Number of days stove installed in year  $y = \text{End date of year } y - \text{Stove installation date in year } y$

### 3.6.13 Sampling

The PoA-DD indicates a sampling plan as per the recommendation outlined in section 6 of EB75, Annex 08 and contains amongst others information related to sampling design, data to be collected and implementation plan.

#### (i) Objective and Reliability Requirements

The objective is to obtain an unbiased and reliable estimate of the proportion (in the case of the parameter  $n_y$ ) and of the mean values (in the case of the parameters  $C_{ps,y}$  and  $RB_y$ <sup>26</sup>) over the course of the crediting period. A 95/10 confidence/precision (as per paragraph 20 of EB74, Annex 6) for annual and 95/10 for biennial sampling<sup>27</sup> across CPAs has to be met. In case a single CPA is sampled (i.e. if a primary sampling unit consists of only one CPA), a 90/10 confidence/precision for annual and 95/10 confidence/precision for biennial sampling shall be complied with (as required by paragraph 17 of the applied methodology AMS-I.E).

#### (ii) Target Population

The target population for the parameter  $n_y$  are the users in the CPA databases (stoves of users still in operation or not) for which emissions reductions are to be accounted in the monitoring period in question. The target population for the parameters  $C_{ps,y}$  and  $RB_y$  are all end users with operational ICS in the database records for which emissions reductions are to be accounted in the monitoring period in question.

The DOE checked the evaluation criterion in EB75, Annex 08, paragraph 41 (b) and confirms that the description of the target population is clear enough to define the population for the sampling purpose.

#### (iii) Sampling Frame

The PoA is open to different CPA implementers, different supplies of renewable biomass and different models of ICS and will have ICS of different vintages implemented. As per EB74, Annex 6, paragraph 20, footnote 20, sampling across a group of CPAs is possible, provided the homogeneity of population in included CPAs can be demonstrated, or differences among the included CPAs are taken into account in the sample size calculation.

The sampling frame is defined by primary sampling units. CPAs being located in the same country and baseline fuel consumption cluster<sup>28</sup>, having the same CPA implementer, using the same ICS model, having ICS with the same vintage<sup>29</sup> and the same supply of renewable biomass<sup>30</sup> are grouped together in a primary sampling unit.

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<sup>26</sup> If a CPA elects to monitor the parameter  $RB_y$  as per options (i), (ii) or (iii) described in part 2(b) of the monitoring plan of the PoA-DD, then the parameter  $RB_y$  is no longer required in the sampling plan as long as a census approach (examining all sales records) is taken to these options.

<sup>27</sup> EB74, Annex 6 does not indicate the confidence/precision for biennial sampling across CPAs. The applied methodology AMS-I.E. indicates in §17 a 95/10 confidence/precision for biennial inspection.

<sup>28</sup> A fuel-consumption cluster is a population that has different fuel consumption patterns than other populations as defined by the fuel-consumption baseline studies attached to the PoA-DD. Each fuel consumption cluster is considered a homogeneous population and defined as boundaries in A.5. of the PoA-DD.

<sup>29</sup> Definition of ICS vintage: For the purposes of this PoA, an ICS vintage correspond to all ICSs which have been in operation for the same amount of years. For example, stoves vintage 1 are all ICSs which have been in operation for

#### (iv) Sampling Method

The sampling method for all 3 sampled parameters ( $n_y$ ,  $C_{ps,y}$  and  $RB_y$ ) is stratified random sampling (as per clause 11-13 of EB75, Annex 8). The sampling method is considered to be appropriate by the DOE given the fact that the population will be divided into primary sampling units (PSUs) as described in the aforementioned section "Sampling Frame". These PSUs are expected to be relatively homogenous but by dividing them into strata any variation will be captured.

In a first stage, all CPAs that have been included in the monitoring period are grouped into PSUs according to the criteria mentioned in the section "Sampling Frame". Once the PSUs are defined, ICS will be randomly selected based on the relative size of the strata. Random number generators shall be applied, in order to guarantee random selection of ICS. Each ICS in the strata is uniquely identifiable by its serial number. Each ICS will be allocated a sample selection number in each monitoring period for the sampling frames relevant to each parameter, starting at 1 and increasing up to the total number of ICS in the database for that pre-defined sampling frame. ICS can then be randomly chosen (by applying the random number generators) from the defined strata up to the calculated sample size following the confidence/precision requirements as per the applied methodology and sampling standard (EB74, Annex 6).

The DOE confirms that primary sampling units with the same six parameters as described in the section "Sampling Frame" are homogeneous strata and ICS are randomly sampled from each strata according to the weight of each strata in the population. Random number generators will be applied in order to ensure a random selection. Each ICS in the target population can be uniquely identified by its unique serial number. Each ICS can thus be allocated a sample selection number in each monitoring period. Applying the random number generators, the ICS can then be randomly chosen from the defined strata up to the required sample size as calculated by the CME. Hereby, it shall be ensured that the confidence/precision requirements of the applied methodology and sampling standard (EB74, Annex 6) are met.

The criteria in EB75, Annex 08, paragraph 41 (c) and (e) have been evaluated and the DOE confirms that the sampling method (stratified random sampling) is clearly described and is in line with the description of the population. The sampling plan transparently describes how the samples are selected and that the use of random number generators ensure a random selection.

#### (v) Sample Size

The three already aforementioned parameters will be sampled in a single survey with a stratified random sample of ICS using the confidence/precision levels described in section "Objective and Reliability Requirements" depending on annual or biennial monitoring frequency.

Of the three parameters to be monitored, one is a proportion/percentage ( $n_y$ ) and the other two are mean values. thus two different formulae for calculating the required sample size are applied as per EB75, Annex 8 and EB74, Annex 6.

For the parameter  $n_y$  the following equation<sup>31</sup> is used:

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less than 365 days. ICSs vintage 2 are those which have been in operation for longer than one year but less than two years.

<sup>30</sup> This will be determined at the discretion of the CME. Differences may include: Biomass from plantations compared to that from municipal waste. Different methods of supply to end users e.g. direct sales compared with using retailers or different constituent wood types.

<sup>31</sup> Equation 4, *Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities* (EB75, Annex 8)

$$n \geq \frac{1.96^2 * N * V}{(N-1) * 0.1^2 + 1.96^2 * V}$$

Where:

- n = Sample size  
 N = Total number of ICS distributed/installed  
 V = expected variance  
 1.96 = Represent the level of confidence (e.g. 1.96 for 95% confidence).  
 0.1 = Required precision (e.g. 10% = 0.1)

Where  $V = \frac{SD^2}{\bar{p}^2} = \frac{\text{overall variance}}{\bar{p}^2}$  and  $\bar{p}$  is the overall proportion

$$SD^2 = \frac{(g_a * p_a (1 - p_a)) + (g_b * p_b (1 - p_b)) + (g_c * p_c (1 - p_c)) + \dots + (g_k * p_k (1 - p_k))}{N}$$

$$\bar{p} = \frac{(g_a * p_a) + (g_b * p_b) + (g_c * p_c) + \dots + (g_k * p_k)}{N}$$

Where:

- $g_i$  = Size of the  $i^{\text{th}}$  group where  $i=1$  or  $a, \dots, k$   
 $p_i$  = Proportion of the  $i^{\text{th}}$  group  $i=a, \dots, k$

For the parameters  $C_{ps,y}$  and  $RB_y$ , the following equation<sup>32</sup> is used:

$$n \geq \frac{1.96^2 * N * V}{(N-1) * 0.1^2 + 1.96^2 * V}$$

Where:

$$V = (SD/\text{Mean})^2$$

- n = Sample size  
 N = Total number of operational cooking systems installed ( $N_y * n_y$ )  
 Mean = Overall mean  
 SD = Overall standard deviation  
 1.96 = Represent the level of confidence (e.g. 1.96 for 95% confidence).  
 0.1 = Required precision (e.g. 10% = 0.1)

<sup>32</sup> Equation 19, *Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities* (EB75, Annex 8)

$$SD = \sqrt{\frac{(g_a * SD_a^2) + (g_b * SD_b^2) + (g_c * SD_c^2) + ... + (g_k * SD_k^2)}{N}}$$

Where

$SD_i$  Standard deviation of the  $i^{th}$  group where  $i=1$  or  $a, ..., k$  (note that these are all squared  
- so the group size is actually being multiplied by the group variance)

$g_i$  Size of the  $i^{th}$  group where  $i=1$  or  $a, ..., k$

$$mean = \frac{(g_a * m_a) + (g_b * m_b) + (g_c * m_c) + ... + (g_k * m_k)}{N}$$

Where

$m_i$  Mean of the  $i^{th}$  group where  $i=1$  or  $a, ..., k$

To calculate the required sample size estimates in the 1st monitoring period, CPA Implementers or CME will collect pilot data for the proportions, mean values, variances and standard deviations. In subsequent monitoring periods, the sample size will be updated taken the results of the previous monitoring period(s) into account.

Since pilot data specific for this given PoA are not available yet, the CME has made certain assumptions to exemplify the sample size calculations for the 3 parameters.

A hypothetical example with a total number of 50,000 distributed ICS and four strata is illustrated in section B.7.2. of the generic CPA within the PoA-DD. The DOE by assessing the calculations in the submitted excel file (IRL 96) confirms that the assumptions for the sample size calculation of the three aforementioned sampled parameters are deemed to be plausible. It is likely that the sample frame will include fewer than 50,000 users and four strata in the first monitoring period, so it can be considered a conservative approach. Assuming a 95/10 confidence/precision (since sampling is done across CPAs), results in a sample size of 101, 95 and 97 ICS for the parameters  $n_y$ ,  $C_{ps,y}$  and  $RB_y$  respectively and 127, 122 and 125 if considering a response rate of 80%. The total sample size is splitted between the strata according to the weight of each strata. The sample size calculations have been verified by the DOE through the sample size calculation excel spreadsheet (IRL 96) and were found to be correct and in line with EB75, Annex 08. In case the resulting sample size to achieve the desired confidence /precision level is smaller than 30 ICS then the sample size will be increased to 30 in the case of parameter  $n_y$  (which is a proportion) and in the case of parameters  $C_{ps,y}$  and  $RB_y$  (which are numeric mean values), the Student's t-distribution shall be used. This is in accordance with EB74 Annex 6, paragraph 12 which defines the aforementioned approaches to be applied dependent on whether the parameter of interest is a proportion or a numeric mean value. The criteria in EB75, Annex 08, paragraph 41 (d) have been evaluated and the DOE confirms that the proposed sample sizes (calculated for exemplification) of the three parameters to be sampled are adequate to achieve the minimum confidence/precision requirements. Assumptions like variances, standard deviations, proportions and mean values, even though only estimates, are deemed to be plausible by the DOE. Anyway, the sample sizes for the three parameters will be re-calculated for the 1<sup>st</sup> monitoring period by the CME or CPA implementer as soon as specific pilot data are

available. In subsequent monitoring periods, the sample sizes will be recalculated updated with the values obtained during monitoring from previous monitoring periods.

(vi) Field Measurements

The following table summarizes field measurement data requirements:

Parameter	Frequency (required by AMS-I.E –Version 5)	Methods to be applied	Comments on seasonal fluctuation
$n_y$	No less frequently than every two years	Visits to the premises, visual inspection and interview with ICS end-user	Any seasonal fluctuations are not expected
$C_{ps,y}$	No less frequently than every two years	Interview with ICS end-user and measure of fuel.	Any seasonal fluctuation will be captured as part of the interview
$RB_y$	No less frequently than every two years	Interview with ICS end-user and measure of fuel.	Any seasonal fluctuation will be captured as part of the interview

(vii) Quality Assurance/Quality Control

The CME will apply measures to ensure that the required confidence/precision for each sampled parameter is met, allowing for non-response and the possible removal of outliers from the sample, as part of a quality control and quality assurance system. Measures may include oversampling, buffer group, draw of additional samples or use of a lower confidence bound. More detailed explanations to these measures are provided in section B.7.2. of the generic CPA-DD within the PoA-DD.

The CME will ensure that field personnel have reviewed, understood and have agreed to follow the monitoring plan procedures, including provisions for maximizing response rates, documenting out-of-population cases, refusals and other sources of non-response. A quality control and assurance strategy will be documented. Quality control and assurance strategies include addressing non-sampling errors, such as non-response or bias from interviewer. The CME or a competent third party designated by the CME with the proper skills will train the monitoring personnel on how to properly survey end users to prevent bias from interviewer. In the case a end user refuses to participate, another user will be chosen at random. To reduce interviewer bias, good questionnaire design and well-tested questionnaires will be used.

The calculation of the sample size will be carried out using estimates for parameter proportions, mean values, variances and standard deviations, as the actual characteristics of the population/sampling frame are unknown. In order to ensure the quality of the sampling results, the CME can draw on the provisions for reliability calculations including estimating the bounds of the confidence interval, the standard error of the mean value or proportion, and the t-value as derived

from the t-distribution.<sup>33</sup> In the event that the sampling results do not fulfil the required level of confidence and precision, the CME can undertake additional samples. If the reliability is still not sufficient after raw data and summary statistics are scrutinized and after additional samples have been collected<sup>34</sup>, the sampling may be repeated with an increased sample size. Alternatively, the CME may choose to apply the lower bound of the sampling results as is allowed for by the applied methodology, paragraph 17.

As the continued use of ICS is a binary parameter, there can be no outliers in the sampled data and no treatment for outliers is required. The sample data for  $C_{ps,y}$  and  $RB_y$  is continuous and therefore the presence of outliers is possible. The following approach will be used to identify and address outliers for the parameters.

Because the sample size is by definition 30 or above for each of the parameters, outliers will be defined as those data points with values greater than three standard deviations from the mean of the sample. The approach for outliers has been validated by the DOE against 'Applied Statistics in Business and Economics, chapter: Sampling distributions and estimation' by Doane and Seward (IRL 31).

#### (viii) Data archiving and Analysis

Hard copies of the surveys will be kept and the database will have a back up. Original stove purchase contracts, information collected from the Registration Card or other means of acceptance by the users will be stored in the CME's main office. A back-up of the project database will also be stored on an electric medium by the CME.

Data obtained from the samples will be used to estimate proportions and mean values for the aforementioned sampled parameters. The values will then serve as input for the emissions reduction calculations. The parameters are applied for emission reduction calculations as outlined in B.6.3 of the PoA-DD. The stoves that are not in use will be excluded from emissions reductions calculations and will not be counted towards the total number of ICS in operation during the monitoring period. The amount of non project wood-fuel consumed in the project stove will be used in the calculation of the per stove emission reduction, which will be subtracted from the per stove baseline value (C) and then multiplied by the number of stoves in operation in the CPA to obtain the emission reductions per CPA.

#### (ix) Implementation plan

Sampling of the aforementioned three parameters, emission reduction calculation and elaboration of the monitoring report will occur at the end of each monitoring period. The maximum length of one monitoring period will be two years (duration, not calendar years), as AMS-I.E., version 5, provides the option for annual or biennial monitoring. The CPA implementer will be responsible for managing user data collection and entry into the project database. Field personnel will receive training on how to properly deal with surveying techniques and reduce errors and sign a document certifying that there is no conflict of interest of those involved in data collection and analysis. If there is conflict of interest, the personnel will not be allowed to participate in data collection and analysis. The project database will record the start and end dates of each monitoring period, and record the emission reductions attributable to each monitoring period. Appropriate record keeping procedures will be

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<sup>33</sup> As provided in EB75, Annex 8, Appendix 4

<sup>34</sup> As per EB75, Annex 8, Appendix 4 and Appendix 5

implemented to ensure that each monitoring period data set can be transparently attributed to its corresponding CPA, preventing any occurrences of double counting. An internal review of the project database will be able to determine the current status of each SSC-CPA, the duration of previous monitoring periods, the users delivering monitoring data, and current verification activities.

The criteria in EB75, Annex 08, paragraph 41 (a), (f) and (g) have been evaluated and the DOE confirms that sufficient provisions are established in order to obtain unbiased, reliable estimates of the variables during data collection/measurement and in order to minimize non-sampling errors. The objective and reliability requirements are complete and are in line with EB74, Annex 06 and the applied methodology AMS-I.E, version 05 and there is no reason to suspect that the sampling results from the activity will be biased. Mechanisms will be established in order to avoid bias in the answers. Personnel to be engaged to conduct sampling will be adequately trained and qualified and the credentials and/or training materials for the sampling personnel can be checked by the verifying DOE at verification stage. Thus, it will be ensured that the evaluation criterion in EB75, Annex 08, paragraph 41 (h) will be complied with. Adequate archiving of the sampling documents will be guaranteed by the CME.

The DOE by assessing EB75, Annex 08 (Guidelines for sampling and surveys for CDM project activities and programme of activities) and EB74, Annex 6 (Standard: Sampling and surveys for CDM project activities and programme of activities) confirms that the sampling plan is appropriate and plausible and is following the applicable requirements. The DOE used amongst others the recommended evaluation criteria indicated in section 8 of EB75, Annex 08 for the validation of the sampling plan. The DOE confirms that the evaluation criteria as per Section 8 of EB75, Annex 08 can be satisfactorily responded when assessing the sampling plan.

Sampling objective, sampling size, sampling target, sampling frame, sampling method, field measurements, QA/QC procedures and implementation plan are deemed to be appropriate and plausible according to the sectoral expertise of the DOE and have been further confirmed and substantiated in on-site interviews with the CME.

### 3.6.14 Environmental analysis of a PoA

It has been indicated in section E.1. of the PoA-DD that the environmental analysis is undertaken at PoA level. The ICS using renewable biomass disseminated across all CPAs present similar positive environmental impacts (like e.g. avoidance of non-sustainable logging of trees and negative consequences of deforestation, reduction of GHG emissions and indoor air pollution, improvement of forest maintenance and prevention of forest fires) wherever they are applied and no anticipated negative impacts. This could be confirmed in interviews with representatives of the Department of Forestry, Malawi and end-users during the DOE's on-site visit. Since the environmental impacts of the PoA will be broadly consistent across all CPAs and are not anticipated to vary significantly hence a PoA-level environmental analysis for each of the host countries is deemed to be most appropriate.

The Department of Environmental Affairs Malawi (at the same time DNA of Malawi) confirmed in an interview with the DOE that no EIA or environmental clearance is required for any of the CPAs located in Republic of Malawi. However, for the host country Republic of Zambia, the DOE due to its local and sectoral expertise and experience in previous cookstove projects, confirms that the Zambian Environmental Management Agency (ZEMA) or any other appropriate agency require a project description for each CPA in order to decide whether or not an EIA is necessary and in order to issue environmental clearance (IRL 76). This is reflected in eligibility criterion 7 which requires an environmental clearance for each CPA located in the host country Republic of Zambia.

Hence the DOE confirms that the requirement stated in §199 of the VVS has been complied with.

### 3.6.15 Local stakeholder consultation

It has been indicated that the local stakeholder consultation is done at the PoA level. The justification of doing local stakeholder consultation at the PoA level has been provided. It is explained that stakeholder comments are invited at PoA level because CPA boundaries are defined primarily by individual ICS/end user location, which extend across the entire SSC-PoA project area (although not crossing country borders). Since the environmental, social and economic impacts will be broadly consistent across CPAs, the CME does not expect significantly different comments from stakeholders across CPAs. The justification is deemed to be appropriate and plausible according to the local and sectoral expertise of the DOE and was confirmed in interviews during the DOE's on-site visit.

A public local stakeholder consultation was held on 30/04/2013 in Lilongwe, Malawi. Stakeholders were invited by the following methods including 1) Two adverts in the 'The Nation' and 'The Daily Times' national newspapers published on 18/04/2013 and 25/04/2013; 2) Email invitations or hand-delivered letters, especially in the instance of governmental or institutional stakeholders; 3) radio announcement on 15/04/2013 (IRL 53).

A public local stakeholder consultation was held on 26/04/2013 in Lusaka, Malawi. Stakeholders were invited by the following methods including 1) Advert in the national newspaper 'The Post' published on 22/04/2013; 2) Email invitations and hand-delivered letters to specific stakeholders like e.g. government officials, DNA, NGOs; 3) radio announcement at Zambia National Broadcasting Corporation on 22/04/2013 (IRL 49).

The assessment team has reviewed the documentation in order to validate the inclusion of relevant stakeholders. The team's local expertise has confirmed that the communication method used to invite the stakeholders is appropriate both for the Republic of Malawi and Republic of Zambia. The 'CDM project approval procedure for Malawi' clarifies the requirements for conducting the stakeholders meeting. The DOE by assessing the procedure (IRL 60) confirms that the local stakeholder consultation was carried out according to the DNA requirements. Besides, it has been clarified in an interview with the focal point of DNA Malawi (Mrs. S. Najira) that PP has to obtain some few feedback comments from end users in rural areas regarding the programme. According to Mrs. S. Najira, this is however a DNA specific requirement and has been verified by the DNA prior to issuance of the LoA and thus has not to be validated by the DOE.

The DOE due to its local and sectoral expertise and previous validation experience in the Republic of Zambia confirms that the DNA of the Republic of Zambia has no formal process requirements or any instructions to the project participants how to organise the stakeholder consultation in the Republic of Zambia.

The summary of comments presented in the PoA-DD has been verified with the documentation of the stakeholder consultation (IRL 49,53) and has been found to be complete and consistent. Advertisements in nationally published newspapers and national radio broadcasting systems (IRL 49,53) gave stakeholders from different locations the chance to provide their comments. Furthermore, the DOE by assessing the stakeholder comments in the aforementioned submitted documentation and interviewing stakeholders during the DOE's on-site field visits, confirms that both comments from stakeholders participating in the stakeholder meeting and interviewed stakeholders are quite similar, thus one can expect that those stakeholders who could finally not participate in the stakeholder meeting would not have significantly different comments.

Comments presented by the local stakeholders have been taken into account by the CME and has been verified with information obtained during interviews.

Hence, the local stakeholder consultations both in the Republic of Malawi as well as in the Republic of Zambia have been performed adequately according to the CDM requirements (i.e. §201 of the VVS).

### 3.6.16 Determination of occurrences of debundling under a PoA

Eligibility criterion 14 in section B.2. of the PoA-DD requires for each CPA a debundling check. For the 1<sup>st</sup> CPA the compliance with the eligibility criterion has been validated against the ER calculation excel spreadsheet (IRL 95). The ER calculation excel spreadsheet indicates the calculation for the rated capacity of the ICS used in the 1<sup>st</sup> CPA which is 3.02 kW<sub>th</sub>. This is a long way below the 0.45 MW<sub>th</sub> (=450 kW<sub>th</sub>) threshold. The input parameters for the calculation of the rated capacity have been taken from the baseline study reports (IRL 92,93), ICS efficiency as per the manufacturer's specifications (IRL 19), default values from IPCC and the applied methodology.

The DOE by assessing the formulae and calculation confirms that the calculation of the rated capacity has been correctly carried out and that each ICS of the 1<sup>st</sup> CPA will not pass the threshold of 1% of the 45 MW<sub>th</sub>. By having a size of each unit which is not larger than 1% of the SSC CDM threshold means at the same time not to exceed 5%<sup>35</sup> of the SSC threshold since 1% is more restrictive than 5%. Concluding, none of the ICS included into the CPA will exceed either 1% or 5% of the SSC threshold (45 MW<sub>th</sub>).

The DOE confirms that the 1<sup>st</sup> CPA is not a debundled component of a large-scale project activity and is thus in line with VVS, §203.

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<sup>35</sup> Eligibility criterion 6 requires ICS to have a rated capacity below 5% of the SSC threshold.



South Asia

## **Annex 1**

### **List of Findings**

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Definitions	
<b>Shall / Should / May</b>	In addition to the definitions contained in the Glossary of CDM terms, the following terms apply in the VVS (VVS/10): <u>Shall</u> is used to indicate requirements to be followed; <u>Should</u> is used to indicate that among several possibilities, one course of action is recommended as particularly suitable; <u>May</u> is used to indicate what is permitted.
<b>Credible</b>	Information is credible if it is authentic and is able to inspire belief or trust, and the willingness of persons to accept the quality of evidence. (VVS/17)
<b>Reliable</b>	Information is reliable if the quality of evidence is accurate and credible and able to yield the same results on a repeated basis. (VVS/17)
<b>CAR</b>	The DOE shall raise a corrective action request (CAR) if one of the following situations occurs (VVS/27): (a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable, verifiable and additional emission reductions; (b) The applicable CDM requirements have not been met; (c) There is a risk that emission reductions cannot be monitored or calculated.
<b>CL</b>	The DOE shall raise a clarification request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. (VVS/26)
<b>FAR</b>	The DOE shall raise a forward action request (FAR) during validation to identify issues related to project implementation that require review during the first verification of the project activity. The DOE shall not raise a FAR that relates to the CDM requirements for registration (VVS/27)

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### Compilation and Resolutions of CARs, CRs of the PoA-DD

Corrective Action Requests by validation team		
	Comments and Results	Conclusion and IRL
Issue	<p>Some of the information presented in the PoA-DD regarding the eligibility criteria is incomplete, inaccurate or not transparent enough to determine whether the applicable CDM requirements referring to eligibility criteria have been met. Some examples of incomplete, inaccurate or not transparent information regarding the eligibility criteria are as follows:</p> <ul style="list-style-type: none"> <li>-Eligibility criterion 3 (in GSP version of the PoA-DD) does not mention anything regarding the 'compliance with testing/certifications' and it is not clear which document substantiates the description of the ICS. Nothing is further mentioned regarding the level of service compared with the baseline system.</li> <li>-In eligibility criterion 4 (in GSP version of the PoA-DD) nothing is mentioned about the conditions to check the start date of the CPA through documentary evidence.</li> <li>-Regarding eligibility criterion 6 and 8 (in GSP version of the PoA-DD), the references to section B.1. and E.3. respectively are not correct.</li> <li>-It is not clear why an eligibility criterion regarding the stakeholder consultation (criterion 7 in GSP version of the PoA-DD) is stated even though section F.1. mentions that stakeholder consultation is done at PoA level.</li> <li>-The eligibility criterion regarding environmental impact analysis (criterion 8 in GSP version of the PoA-DD) and E.1. of the PoA-DD (assuming the environmental analysis at CPA level) are inconsistent with the information in section B.1. of the CPA-DD which states that the environmental impacts are analysed at PoA level and the information provided in section E.2. of the PoA-DD mentioning the environmental impacts at PoA level.</li> <li>-The 'means of validation' in eligibility criterion 11 (in GSP version of the PoA-DD) do not make sufficiently clear that in the case that public funding (ODA) is provided, a declaration from the entity providing this funding has to be provided which confirms that no diversion of ODA is involved.</li> <li>-Section F.2. (under "Zambia") mentions that "regardless of where the stove is manufactured, it needs to meet the minimum eligibility criteria of thermal efficiency", however no eligibility crite-</li> </ul>	<p>CAR is closed.</p> <p>87</p> <p><input checked="" type="checkbox"/></p>

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Corrective Action Requests by validation team		
	<p>tion regarding thermal efficiency is mentioned in the PoA-DD.</p> <p>-The eligibility criterion 1 (in GSP version of the PoA-DD) mentions the dissemination of ICS and renewable biomass in one of the host countries of the PoA, however does not mention anything regarding the targeted fuel type and fuel consumption cluster/host country region (which might be applicable) according to the presented baseline study reports.</p>	
Requirement	<p>VVS, §196 “The DOE shall assess the eligibility criteria for inclusion of a CPA in the PoA in accordance with the “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”.</p> <p>PS, §151 “The coordinating/managing entity shall define in the proposed CDM PoA the eligibility criteria for inclusion of a CPA under the PoA, in accordance with the “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”.</p>	
Corrective Action Request	<p><b><u>Corrective Action Request No.1</u></b></p> <p>The PP is requested to provide clear and complete information regarding the eligibility criteria as part of this response and/or as within the revised documents in order to allow the DOE to determine whether the applicable CDM requirements have been met.</p>	
Response	<p>Amendments have been made to the eligibility criteria and other relevant sections of the PoA-DD to ensure they are complete, transparent and accurate. Amendments include the following:</p> <p>-Eligibility criterion 3 has been amended under Means of Validation to state that the technical description of ICS from the manufacturer will be provided in section A.5. of the CPA-DD and compliance with testing/certifications as per manufacturers specifications (if any). As per the methodology there is no specific testing or certification required under the CDM. Any testing or certification required by national standards is considered in the requirement to comply with national standards if available. Further it has been mentioned that information will be provided that the same or higher level of service will be provided, that the kW<sub>th</sub> capacity of the ICS is less than 450kW<sub>th</sub>, that the ICS is either fixed or portable and that at least one of the other technical specifications (mentioned in the eligibility criterion 3) will be met.</p> <p>-Eligibility criterion 4 has been amended to state “Documentary evidence will be provided to justify the start date of the CPA.” Under the Means of Validation the wording has also been revised to be more transparent: “The start of the CPA will be the date of first distribution as</p>	

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Corrective Action Requests by validation team		
	<p>demonstrated by Registration Cards or other appropriate forms indicating the first dissemination of ICS.”</p> <ul style="list-style-type: none"> <li>-Eligibility criterion 6 and 8 (now 7 in current version), have been amended to refer to sections A.5. of the CPA-DD and E.1. of the PoA-DD respectively which are the correct references.</li> <li>-Eligibility criterion 7 has been deleted. LSCs have been undertaken on PoA level as indicated in Section F of the PoA-DD and therefore there is no need to have this eligibility criterion confirming this. There will be no LSC at CPA level and therefore this criterion has been removed.</li> <li>-Eligibility criterion 8 (now 7 in current version) and section E.1. of the PoA-DD have both been amended and edited for clarity, environmental analysis is undertaken at PoA level as is correctly stated in the CPA-DD. In the case of CPAs in Zambia environmental clearance is required at CPA level as confirmed in the revised eligibility criterion: “As described in section E.1. of the PoA-DD environmental clearance is required for CPAs in Zambia.” Section E.1. now states: “The environmental analysis will take place at the PoA level for all CPAs. However for CPAs in Zambia to comply with national legislation environmental clearance will have to be obtained at CPA level as reflected in eligibility criterion 7.”</li> <li>-For eligibility criterion 11 (now 10 in current version) the means of validation have been expanded and clarified to state: “A statement by the CPA implementer will be provided to demonstrate no funding has been received from Annex 1 parties. If money is received from Annex I parties confirmation of non-diversion will be provided by the funder.” This makes it clear that in the case that public funding (ODA) is provided, a declaration from the entity providing this funding has to be provided which confirms that no diversion of ODA is involved.</li> <li>-The statement that “regardless of where the stove is manufactured, it needs to meet the minimum eligibility criteria of thermal efficiency” is incorrect as there is no eligibility criterion regarding thermal efficiency, this sentence has therefore been deleted.</li> <li>-Eligibility criterion 1 has been revised to: “Be implemented entirely within a single fuel-specific geographical boundary (as specified in section A.4.5 of the PoA-DD) according to the targeted fuel type, fuel-consumption cluster (if applicable), and host country region of the CPA-DD.” This is to make the criterion clearer and distinguish between separate fuel consumption boundaries under the PoA.</li> </ul>	
Assessment	The DOE by assessing the revised PoA-DD confirms that the information presented in the re-	

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Means of validation	<p>vised PoA-DD regarding the eligibility criteria is complete, accurate and transparent. Hence, the DOE concludes that the applicable CDM requirements referring to eligibility criteria have been met. Amendments include amongst others the followings:</p> <ul style="list-style-type: none"> <li>- Eligibility criterion 3 has been revised referring now in 'means of validation' to the technical description of ICS from manufacturer which shall be provided in section A.5. of the CPA-DD as well as the compliance with testing/certifications as per the manufacturer's specifications (if any). The DOE confirms that the applied methodology does not require specific testing or certification. Any testing or certification required by national standards is considered in the requirement to comply with national standards if such standards exist in the host country. The eligibility criterion has been further revised requesting a confirmation that each ICS will deliver the same or higher level of service in comparison with the baseline system being replaced. Besides, each ICS will be required to meet the following technical specifications of having a kW<sub>th</sub> capacity of less than 450kW<sub>th</sub> and being either fixed or portable. In addition the ICS must meet at least one of the following technical specifications: <ul style="list-style-type: none"> <li>• Thermal efficiency of greater than 20% as determined by a Water Boiling Test.</li> <li>• Have an improved combustion chamber utilizing either the rocket stove design, insulated chamber or pyrolysis.</li> </ul> </li> <li>-Eligibility criterion 4 mentions now that 'documentary evidence will be provided to justify the start date of the CPA' and the start date of the CPA will be demonstrated through registration cards or other appropriate forms indicating the 1<sup>st</sup> dissemination of ICS. Hence, the conditions to check the start date of the CPA through documentary evidence are clearly demonstrated.</li> <li>-Eligibility criterion 6 and 8 (now 7 in the revised PoA-DD version), have been revised to refer to sections A.5. of the CPA-DD and E.1. of the PoA-DD respectively. The DOE confirms that these are the correct references.</li> <li>-Eligibility criterion 7 from the GSP version of the PoA-DD has been deleted. Since local stakeholder consultations (LSCs) have been undertaken on PoA level as indicated in Section F of the PoA-DD, the DOE confirms that there is no need to maintain this eligibility criterion. There will be no LSC at CPA level and therefore this criterion is unnecessary. The justification given by the PP in section F.1. of the PoA-DD why the stakeholder consultations are most appropriately carried out at PoA level is deemed to be plausible by the DOE.</li> </ul>	

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	<p>-Eligibility criterion from the GSP version of the PoA-DD 8 (now criterion 7 in the revised PoA-DD) and section E.1. of the PoA-DD have both been revised in order to provide clarity. Environmental analysis is undertaken at PoA level (as it had been already correctly stated in the specific CPA-DD) , however in the case of CPAs in the host country Zambia, environmental clearance is required at CPA level as confirmed in the revised eligibility criterion 7 and section E.1. of the revised PoA-DD. The justification given by the PP in section E.1. of the PoA-DD why environmental impacts are most appropriately analyzed at PoA level is deemed to be plausible by the DOE.</p> <p>-The 'means of validation' in eligibility criterion 11 from the GSP version of the PoA-DD (now criterion 10 in the revised PoA-DD) makes it clear now that in the case that public funding (ODA) is provided, a confirmation from the entity providing this funding has to be provided that no diversion of ODA is involved.</p> <p>-The sentence in question has been removed from section F.2. (under "Zambia") since there is no eligibility criterion regarding minimum thermal efficiency defined in the PoA-DD or requested by the methodology.</p> <p>-Eligibility criterion 1 has been revised referring now as well to the targeted fuel type, fuel consumption cluster (if applicable) and host country region of the CPA-DD.</p> <p>The DOE deems the eligibility criteria to be appropriate and in line with EB74, Annex 5</p>	
Adjustment on project design	PoA-DD has been revised.	

Corrective Action Requests by validation team		
	Comments and Results	Conclusion and IRL
Issue	Some of the information presented in the PoA-DD regarding choice of options and data related to the emission reduction calculation is incomplete to determine whether the applicable CDM requirements have been met or is inconsistent with the applied methodology. Some examples of incomplete information regarding the choice of options and data related to the emission reduction calculation and inconsistent information with the applied methodology are as follows:	<p>CAR is closed.</p> <p>3,45,48,67,68,69,87,92</p> <p>☑</p>

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	<ul style="list-style-type: none"> <li>-B.6.2./B.6.3. does not explain which of the 2 options offered by the methodology is finally chosen for determination of <math>\eta_{old}</math></li> <li>-B.6.2. (parameter <math>\eta_{old}</math>) does not mention the justification (as per paragraph 6 of the applied methodology) for the use of the default value (0.1).</li> <li>-The equation for the calculation of 'Ty' (Fraction of time in year y each ICS was installed) is missing in the PoA-DD.</li> <li>-The equation for the calculation of 'CAP<sub>stove</sub>' is missing in the PoA-DD (section B.6.3.).</li> <li>-Values for the parameter 'Baseline wood-fuel consumption per baseline appliance per year' and the percentage of ongoing baseline stove use for each country/fuel consumption cluster are missing in the PoA-DD even though the same have been determined ex-ante through baseline studies (surveys) by a 3<sup>rd</sup> party.</li> <li>-Information regarding leakage as per paragraph 11 of the applied methodology is missing.</li> <li>-PP apply national fNRB values both for Malawi and Zambia from own studies even though paragraph 19 of the applied methodology mentions that either the default national values approved by the Board (as per EB67, Annex 22) or local (sub-national) values resulting from own studies shall be applied.</li> </ul>	
Requirement	<p>VVS §96 "The DOE shall determine whether the steps taken and the equations and parameters applied in the POA-DD to calculate Program emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected methodology including applicable tool(s)".</p> <p>PS, §50 "Project participants shall provide ex ante calculations of baseline, project and leakage GHG emissions as well as GHG emission reductions of the proposed CDM project activity or CPA for each year of the crediting period, in accordance with the selected methodology(ies). Project participants shall describe all steps undertaken for these calculations and provide all results."</p> <p>PS, §51 "If the selected methodology(ies) includes different scenarios or cases or provides different options and/or default values to choose, project participants shall justify which ones are applied to and/or chosen for the proposed CDM project activity or CPA."</p>	

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Corrective Action Request	<p><b><u>Corrective Action Request No.2</u></b></p> <p>The PP is requested to provide complete and sufficient information regarding the choice of options and data related to the emission reduction calculation as part of this response and/or as within the revised documents in order to allow the DOE to determine whether the applicable CDM requirements have been met.</p>	
Response	<p>Amendments have been made regarding the choice of options and data related to the emission reduction calculation to ensure they are complete and clear. The amendments made include:</p> <ul style="list-style-type: none"> <li>-In section B.6.3. it is now stated that the default value of 0.1 will be used in Zambia and for rural CPAs in Malawi. In urban areas of Malawi the default 0.2 will be used as confirmed in the baseline report many households are already using cook stoves with improved combustion chambers. These choices are explained in more detail in the parameter box in B.6.2.</li> <li>- As with the previous amendment parameter <math>\eta_{old}</math> is now justified. It is now stated that the default value of 0.1 will be used in Zambia and for rural CPAs in Malawi. In urban areas of Malawi the default 0.2 will be used as confirmed in the baseline report many households are already using cook stoves with improved combustion chambers.</li> <li>-The equation for the calculation of '<math>T_y</math>' has now been described in the parameter box in section B.7.1. It states "This is the fraction of time a ICS has been installed in year y. <math>T_y</math> will be determined for each individual stove in a CPA as follows.</li> </ul> $T_y = (\text{End date of year } y - \text{Stove installation date in year } y) / \text{Number of days in year } y.$ <p>If the stove installation date is before year y then <math>T_y</math> will be 1.</p> <p>Example: If an ICS was installed on 1 July 2013 then it would have been installed for 184 days over the whole of 2013 or <math>184/365 = 0.504</math>."</p> <p>The name of the parameter has also been amended for clarity to "Fraction of time in year y each ICS was installed".</p> <ul style="list-style-type: none"> <li>-An example equation for the calculation of '<math>CAP_{stove}</math>' has now been added to the PoA-DD (section B.6.3.): <math>CAP_{stove}</math> will be determined based on the most appropriate information available. It is either specified by the manufacturer or a calculation such as the one below may be used:</li> </ul>	

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	$CAP_{stove} = \frac{B_y * NCV_{baselinefuel} * \frac{\eta_{old}}{\eta_{new}} * 0.277778}{h}$ <p>Where</p> <p><math>B_y</math> Baseline woody biomass consumption per stove (kg/day)</p> <p><math>NCV_{baselinefuel}</math> Net calorific value of the baseline fuel</p> <p>0.277778 Conversion factor from MJ to kWh</p> <p><math>h</math> Hours spent cooking in an average day (hours)</p> <p>This equation is not fixed as for different stove models there may be more appropriate information or methods of calculation. These will therefore be determined at CPA level. The parameter box in section B.6.2 has also been amended to reflect this.</p> <p>-Values for the parameter 'Baseline wood-fuel consumption per baseline appliance per year' and the percentage of ongoing baseline stove use for each country/fuel consumption cluster have now been added in the PoA-DD in the parameter box C based on the baseline studies (surveys) by a 3<sup>rd</sup> party:</p> <p>"For CPAs in urban areas of Malawi (charcoal): 5.475</p> <p>For CPAs in dry urban areas of Zambia (charcoal):5.453</p> <p>For CPAs in wet urban areas of Zambia (charcoal): 4.621</p> <p>For CPAs in urban areas of Malawi (fuelwood): 3.154</p> <p>For CPAs in urban areas of Zambia (fuelwood): 5.074</p> <p>See Appendix 4 for full reports. Reductions were made in from total household fuel usage to convert to take into account multiple stove usage. In Malawi 20.87% of rural household used multiple stove compared to 25.1% in urban areas. In Zambia 23.0% of rural household used multiple stove compared to 37.6% in urban areas." The full reports have been added to appendix 4.</p> <p>-Information regarding leakage as per paragraph 11 of the applied methodology has now been added to section B.6.1: The other source of leakage occurs if equipment currently being util-</p>	

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	<p>ised is transferred from outside the boundary to the project activity. All ICS in the SSC-PoA will be newly manufactured/assembled or newly installed. Where second-hand/used ICS are distributed to an end-user the ICS will be from within the project (ie previously newly manufactured/assembled and either a demonstration model or transferred from one end-user within the project to another new or existing end-user). In both of these cases there will be no equipment (ICS) being utilized outside the project area (any project non-participant) that is transferred to the project area (included as an ICS in the database) so leakage defined in paragraph 11 of the AMS I.E (version 5) methodology is not considered. Where second-hand/used ICS are transferred within the project area (between end-user project participants) the database will be updated to reflect this change to ensure there is no double counting of ICS.</p> <ul style="list-style-type: none"> <li>- The parameter <math>C_{p,y}</math> has been deleted from the emission reduction calculations, the parameter box and the sampling plan. This parameter is for the baseline wood fuel consumption in baseline stoves in year <math>y</math>. As all the baseline studies already took into account use of multiple stoves there was no need to incorporate for this parameter.</li> <li>- The parameter <math>fNRBy</math> has been amended to 0.81 for Malawi to comply with paragraph 19 of the methodology requiring default values are used were one is approved.</li> </ul> <p><b>2<sup>nd</sup> DOE Request:</b></p> <ul style="list-style-type: none"> <li>-Values for the parameter 'Baseline wood-fuel consumption per baseline appliance per year' and the percentage of ongoing baseline stove use have been added into parameter box "C" in section B.6.2. of the PoA-DD, however for urban areas in Malawi the different values for the different clusters (which are not homogenous according to the baseline study report) are not mentioned. Besides, some of the values of ongoing baseline stove use are not indicated according to the fuel consumption clusters.</li> <li>-The parameter <math>fNRB</math> has been revised to 0.81 for Malawi hence follows the national default value as per EB67, Annex 22. However, for Zambia the <math>fNRB</math> value has not been revised yet and PP still applies a national value from an own study even though a national default value (as per EB67, Annex 22) is available.</li> </ul> <p><b>2<sup>nd</sup> PP response:</b></p> <ul style="list-style-type: none"> <li>-Values for the parameter 'Baseline wood-fuel consumption per baseline appliance per year' for urban areas in Malawi have been altered to reflect the five different values for the different clus-</li> </ul>	

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	<p>ters. Additionally the values of ongoing baseline stove use are indicated according to the fuel consumption clusters.</p> <p>-The parameter fNRB for Zambia has not been revised as the default value has not been approved. It states on <a href="http://cdm.unfccc.int/DNA/fNRB/index.html">http://cdm.unfccc.int/DNA/fNRB/index.html</a> "The Board also noted that when acceptance is received from designated national authorities (DNAs), the default values can be applied in small-scale CDM project activities and programme of activities in the respective host countries." As this has yet to be accepted by the Zambian DNA it is not required to use the default value.</p>	
Assessment Means of validation	<p>The DOE by assessing the revised PoA-DD confirms that the information presented in the revised PoA-DD regarding choice of options and data related to the emission reduction calculation is complete and consistent with the applied methodology. Hence, the DOE confirms that the applicable CDM requirements have been met . Amendments include amongst others the followings:</p> <p>-B.6.2./B.6.3. explain now that if option 6(b) for the determination of <math>B_y</math> is chosen, then for all CPAs in rural Malawi and Zambia the <math>\eta_{old}</math> default value of 0.1 will be chosen and the <math>\eta_{old}</math> default value of 0.2 for CPAs in urban Malawi. The DOE by assessing the references IRL 45 and 48 as well as the baseline study report for urban Malawi (IRL 92) and through end-user visits during the on-site audit confirms that the applied default values are appropriate in the context of the systems to be replaced.</p> <p>-B.6.2. (parameter <math>\eta_{old}</math>) provides now a justification (as per paragraph 6 of the applied methodology) for the use of the default value of 0.1 and 0.2 respectively. Since in urban Malawi stoves with improved combustion chambers are often used (the same can be verified through the Malawi urban baseline study report (IRL 92) and DOE end-user household visits), PP decided to conservatively apply the default value of 0.2. For Zambia and rural Malawi the default value of 0.1 is applied since in these regions the vast majority uses 3-stone fires or unimproved charcoal stoves. This is confirmed by references IRL 45 and 48. The application of the default values is in line with the requirements of the applied methodology.</p> <p>-The equation for the calculation of 'Ty' (Fraction of time in year y each ICS was installed) has been added in section B.7.1. of the PoA-DD. The DOE by assessing the equation confirms its</p>	

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	<p>appropriateness.</p> <ul style="list-style-type: none"> <li>-An example equation for the calculation of 'CAP<sub>stove</sub>' has been added to section B.6.3. of the PoA-DD. As informed by the PP, the equation may vary according to the ICS type used in the respective CPA. CAP<sub>stove</sub> may be also specified by the manufacturer of the ICS and in this case no additional calculation would be necessary. The choice of option will be determined at CPA level. The added information is deemed to be appropriate according to the sectoral expertise of the DOE.</li> <li>-Information regarding leakage as per paragraph 11 of the applied methodology has been added to section B.6.1. of the PoA-DD. The DOE due to its sectoral expertise by assessing the revised PoA-DD confirms that the explanation is deemed to be appropriate and credible to conclude that no leakage as per paragraph 11 of the applied methodology has to be considered .</li> <li>-Even though not explicitly mentioned in "Issues" PP clarified in his response that the parameter for the baseline wood fuel consumption in baseline stoves in year y (C<sub>p,y</sub>) has been removed from the monitoring and sampling plan. Since there is no methodology requirement for monitoring this parameter, the same is accepted by the DOE.</li> </ul> <p><b>Conclusion after 2<sup>nd</sup> DOE Request:</b></p> <ul style="list-style-type: none"> <li>-The different values for the different clusters (which are not homogenous according to the baseline study report) for the parameter 'Baseline wood-fuel consumption per baseline appliance per year' for urban areas in Malawi have been added in section B.6.2. of the PoA-DD. The yearly values have been re-calculated by the DOE using the daily consumption values from the baseline study report. The values can be confirmed to be correct. The values of ongoing baseline stove use are indicated now in the PoA-DD according to the fuel consumption clusters and have been found consistent with the baseline study report (IRL 92).</li> <li>-Even though a national default value (as per EB67, Annex 22) is available for the Republic of Zambia, the same has not been approved by the Zambian DNA yet. This could be validated by the DOE checking the website <a href="http://cdm.unfccc.int/DNA/fNRB/index.html">http://cdm.unfccc.int/DNA/fNRB/index.html</a>. The website mentions that "The Board also noted that when acceptance is received from designated national authorities (DNAs), the default values can be applied in small-scale CDM project activities and programme of activities in the respective host countries." That means in reverse that when</li> </ul>	

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	such approval has not taken place, the default value cannot be applied. Hence the use of the Zambian fNRB value resulting from the national 3 <sup>rd</sup> party study (IRL 68) which was carried out on behalf of the CME is justified. The fNRB value for Zambia has been validated by the DOE through the 3 <sup>rd</sup> party report including additional references and clarifications to that report (IRL 67 and 68) together with the calculations in an excel file (IRL 69). The calculation resulting in a figure of 0.84 for fNRB for whole Zambia is deemed to be credible and appropriate according to the submitted documents and its correctness is furthermore assured through the 3rd party expertise.	
Adjustment on project design	PoA-DD has been revised.	

Corrective Action Requests by validation team		
	Comments and Results	Conclusion and IRL
Issue	<p>Some of the information presented in the PoA-DD regarding the monitoring and sampling plan is incomplete, non-transparent or inconsistent to determine whether the same are in line with the applied methodology, tools and 'Standard for sampling and surveys for CDM project activities and programme of activities'. Some examples of incomplete, non-transparent or incorrect information are as follows:</p> <ul style="list-style-type: none"> <li>-The target population is not indicated for each of the parameters even though there is a difference in the target population between the parameters;</li> <li>-It is not clear why simple random sampling is considered as the most appropriate sampling method, even though CPAs are grouped into primary sampling units and then ICS are randomly selected from those primary sampling units. Besides, the section 'sample size' of the PoA-DD mentions 'ICS sampled per district' whereas other sections do not mention anything regarding districts or sampling of districts.</li> <li>-Some references are not consistent (in particular in footnotes 45, 46, 49 (version 01 of the PoA-DD) with the primary data source.</li> </ul>	<p>CAR is closed.</p> <p><input checked="" type="checkbox"/></p> <p>5,10,87,96</p>

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	<ul style="list-style-type: none"> <li>-The formula with figures is missing for the parameters <math>C_{p,y}</math> and <math>C_{ps,y}</math>.</li> <li>-The explanation regarding the formation of primary sampling units does not consistently consider 'the same supply of renewable biomass'.</li> <li>-Comments on seasonal fluctuations of the parameters to be sampled are missing.</li> <li>-B.7.2. mentions how to treat outliers in sample size above 30 and below 30. However, the explanation is not in line with EB74, Annex 6.</li> <li>-The section 'Analysis' mentions that 'a project database includes the following data that can be directly attributable to each CPA', however the 'following data' are not indicated.</li> <li>-It is not clear why "ICS vintage" and "same country/fuel consumption cluster" are not taken into account when identifying the primary sampling units.</li> </ul>
Requirement	<p>VVS, §131 "The DOE shall determine whether the description of the monitoring plan included in the POA-DD is based on the approved monitoring methodology including applicable tool(s)".</p> <p>Project standard, §53 "....project participants shall develop and describe the sampling plan in accordance with the 'Standard for sampling and surveys for CDM project activities and programme of activities'".</p>
Corrective Action Request	<p><b><u>Corrective Action Request No.3</u></b></p> <p>The PP is requested to provide complete, transparent and consistent information regarding the monitoring and sampling plan as part of this response and/or as within the revised documents in order to allow the DOE to determine whether the applicable CDM requirements have been met.</p>
Response	<p>Amendments have been made regarding the monitoring and sampling plan to ensure they are complete, transparent and consistent and are in line with the applied methodology, tools and 'Standard for sampling and surveys for CDM project activities and programme of activities. Amendments include:</p> <ul style="list-style-type: none"> <li>-The target population has been clarified: "The target population for <math>n_y</math> are the users contained in the CPA databases. The target population for all other parameters are those ICS which are found in operation." This demonstrates the different target populations.</li> <li>-The sampling method has been changed to stratified random sampling. It was decided simple</li> </ul>

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	<p>random sampling was not the most appropriate. The CPAs that are grouped into primary sampling units will now be strata. It is expected that each stratum will be homogeneous and any variation between strata will be captured by the sampling method. Strata / primary sampling units will be defined by the following six characteristics: The same country and fuel consumption cluster, the same CPA Implementer, the same primary baseline fuel consumption cluster, the same ICS model, the same ICS vintage, the same supply of renewable biomass. Due to the change in sampling method all of the sample size calculations have been amended and a revised sample size calculation spreadsheet has been sent to the DOE. In the section 'sample size' mention of 'ICS sampled per district' has been deleted, this was included in error.</p> <p>-All incorrect references in footnotes have now been amended to ensure the correct sources are referred to.</p> <p>-As mentioned and explained in more depth in CAR 2 the parameter <math>C_{p,y}</math> has now been deleted. For <math>C_{ps,y}</math>, the sampling size equation with numbers has now been added to the sample size section of the sampling plan.</p> <p>-The explanation regarding the formation of primary sampling units has been amended for consistency to ensure 'the same supply of renewable biomass' is considered. Additionally further explanation has been given as to how this will be achieved.</p> <p>-Seasonal fluctuations will be determined in the same way as the baseline studies. Confirmation of this has been added in the PoA-DD:</p> <p><b><math>C_{ps,y}</math></b>      Non project wood-fuel consumed in the project stove in year y, determined through interview with end user and measure of fuel. Any seasonal fluctuation will be captured as part of the interview (mass value)</p> <p><b><math>RB_y</math></b>      Mass of renewable biomass consumed by the end users in year y, if sampled determined through interview with end user and measure of fuel. Any seasonal fluctuation will be captured as part of the interview. (mass value)</p> <p>-In B.7.2. the differentiation in the outlier explanation in sample size above 30 and below 30 has been removed to reflect the fact that the sample size has to be in accordance with EB74, Annex 6, paragraph 12.</p> <p>-In the section 'Analysis' the phrase 'following data' has been deleted as this was included in error.</p>	

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	-As mentioned above "ICS vintage" and "same country/fuel consumption cluster" are now taken into account when identifying the primary sampling units.	
Assessment Means of validation	<p>The DOE by assessing the revised PoA-DD confirms that the information presented in the revised PoA-DD regarding the monitoring and sampling plan is complete, transparent and consistent. The DOE concludes that the revised PoA-DD is in line with the applied methodology, tools and 'Standard for sampling and surveys for CDM project activities and programme of activities'. Amendments include amongst others the followings:</p> <ul style="list-style-type: none"> <li>-The target population is now indicated for each of the parameters to be sampled. The DOE due to its sectoral expertise confirms that the target population for the parameters to be sampled is plausible.</li> <li>- PP changed the sampling method in the revised monitoring (sampling) plan to stratified random sampling. The CPAs that are grouped into primary sampling units will now be strata. It is expected that each stratum will be homogeneous and any variation between strata will be captured by the sampling method. Primary sampling units (strata) will be identified following six characteristics: The same country and fuel consumption cluster (if applicable), the same CPA implementer, the same ICS model, the same ICS vintage, the same supply of renewable biomass. Due to the change in sampling method the whole sample size calculations have been amended and a revised sample size calculation spreadsheet has been sent to the DOE (IRL 96) and was verified by the same. The DOE by assessing the sampling guidelines (EB75, Annex 8), §11-13 confirms that the sampling method is appropriately chosen by the PP.</li> </ul> <p>The reference to 'ICS sampled per district' has been removed since this was a typo.</p> <ul style="list-style-type: none"> <li>-The references in footnotes have been revised and are correct now if comparing with the primary data sources.</li> <li>-The parameter <math>C_{p,y}</math> has been removed from the monitoring (sampling) plan which was in more detail already assessed in the previous CAR. The sampling size equation with numbers for the parameter <math>C_{ps,y}</math> has been added in the sample size calculation section of the sampling plan. The DOE by assessing the sampling guidelines (EB75, Annex 8) and due to its sectoral expertise confirms the correctness and appropriateness of the sample size calculation.</li> <li>-The explanation regarding the formation of primary sampling units does now consistently consider 'the same supply of renewable biomass'. Besides, the parameter RBy (mass of renew-</li> </ul>	

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	<p>able biomass consumed by the end users in year y) was still added to those sections of the sampling plan where it was previously missing.</p> <ul style="list-style-type: none"> <li>-Information has been added to the sampling plan regarding seasonal fluctuations. Any seasonal fluctuations of non project wood-fuel consumed in the project stove and mass of renewable biomass consumed by the end users will be captured during surveys with end-users.</li> <li>-The explanation regarding outliers has been revised in section B.7.2.. It is clear now that in case the resulting sample size to achieve the desired confidence /precision level is smaller than 30 ICS then the sample size will be increased to 30 in the case of parameter <math>n_y</math> (which is a proportion) and in the case of parameters <math>C_{ps,y}</math> and <math>RB_y</math> (which are numeric mean values), the Student's t-distribution shall be used. This is in accordance with EB74 Annex 6, paragraph 12 which defines the aforementioned approaches to be applied dependent on whether the parameter of interest is a proportion or a numeric mean value.</li> <li>-The wording 'following data' has been deleted since it was a typo.</li> <li>-According to the revised sampling plan both "ICS vintage" and "same country/fuel consumption cluster" are now taken into account when identifying the primary sampling units.</li> </ul>	
Adjustment on project design	PoA-DD and sample size calculation excel spreadsheet have been revised.	

Corrective Action Requests by validation team		
	Comments and Results	Conclusion and IRL
Issue	<p>Some of the information presented in the PoA-DD regarding the boundary for the PoA in terms of geographical area is not consistent with the information provided in the baseline studies (surveys) and not transparent. Some examples of inconsistent and unclear information are as follows:</p> <ul style="list-style-type: none"> <li>-The baseline studies (surveys) determine for each country besides the specific fuel type (charcoal or wood fuel) the areas (e.g. considering city size, exclusion of certain areas etc) which are part of the baseline study and thus dissemination area of the given ICS PoA. However, neither project boundary nor eligibility criteria define for the countries the respective are-</li> </ul>	<p>CAR is closed. 12,13,86,87,89,92,93, 94 <input checked="" type="checkbox"/></p>

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	<p>as.</p> <ul style="list-style-type: none"> <li>-It is not clear how 'urban' and 'rural' in each of the countries is defined.</li> <li>-The baseline studies (surveys) mentions the exclusion of certain areas from the baseline areas, however the PoA-DD (in section A.5.) does not mention the same and does not exclude these areas from the project boundary.</li> </ul>	
Requirement	<p>VVS, §191 "The DOE shall assess the boundary of the PoA within which all CPAs included in the PoA will be implemented"</p> <p>PS, §39 "Project participants shall define the boundary of the proposed CDM project activity or PoA, including the physical delineation of the project activity, and which sources and GHGs are included in the project or CPA boundary, in accordance with the selected methodology(ies)."</p>	
Corrective Action Request	<p><b><u>Corrective Action Request No.4</u></b></p> <p>The PP is requested to provide consistent and transparent information regarding the project boundary as part of this response and/or as within the revised documents in order to allow the DOE to determine whether the applicable CDM requirements have been met.</p>	
Response	<p>The information presented in the PoA-DD regarding the boundary for the PoA in terms of geographical area has been amended to be consistent with the information provided in the baseline studies (surveys) and to ensure transparency. Amendments include:</p> <ul style="list-style-type: none"> <li>-The project boundary now indicates fuel specific boundaries that each CPA will have to comply with including exclusions. Definitions of rural and urban settings are now also detailed in the PoA. It is not necessary to include this as an eligibility criterion however as each CPA will have to define the project boundary in line with the definition given in A.5 of the PoA-DD and the baseline fuel consumption as defined by the parameter C.</li> <li>-The definition of rural and urban for each country is now provided in section A.2. of the PoA-DD: "Urban areas in Malawi are defined as per the United Nations Demographic Yearbook as "All townships and town planning areas and all district centres". In order to increase clarity, the CME defined rural communities as areas outside of urban boundaries of towns, townships, district centres and cities of population greater than 4765 – the lowest population number found in the classification" cities, towns, villages" as per the website (<a href="http://www.citypopulation.de/Malawi.html">http://www.citypopulation.de/Malawi.html</a> (last visited on 14/12/2012). Urban areas in Zambia are defined as per the United Nations Demographic Yearbook as "Localities of 5,000 or more inhabitants, the majority of whom all depend on non-agricultural activities."</li> </ul>	

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	<p>(<a href="http://unstats.un.org/unsd/demographic/products/dyb/dyb2008.htm">http://unstats.un.org/unsd/demographic/products/dyb/dyb2008.htm</a>). There is no specific definition for rural areas in Zambia, this is considered to be all areas which are not urban. Hence rural households are those which are physically located in a non-urban areas of Zambia.”</p> <p>-Section A.5. now mentions the exclusion of certain areas from the fuel specific cluster boundaries and excludes them from the project boundary:</p> <p>The fuel specific geographic boundaries for urban (charcoal) users in Malawi are all settlements with a population over 4,765 as defined as urban in section A.2 of the PoA-DD separated into the following homogenous areas as identified in the baseline study (see Appendix 4 for full reports). Northern<sup>1</sup> (Northern: Latitude:-9.366667°N, Longitude: 33.000000°E, Western: Latitude:-9.419258°N, Longitude: 32.940903°E, Southern: Latitude:-12.736801°N, Longitude: 33.657761°E, Eastern: Latitude:-11.662996°N, Longitude: 34.323578°E), Central Capital (Northern: Latitude: -13.862747°N, Longitude: 33.747139°E, Western: Latitude:-13.930735°N, Longitude: 33.715954°E, Southern: Latitude:-14.063653°N, Longitude: 33.801441°E, Eastern: Latitude:-13.95406°N, Longitude: 33.848076°E), Central Smaller Settlements (Excluding Central Capital Northern: Latitude: -12.157486°N, Longitude: 33.858948°E, Western: Latitude:-13.600000°N, Longitude: 32.666667°E, Southern: Latitude:-15.310678°N, Longitude: 34.814758°E, Eastern: Latitude:-14.785505°N, Longitude: 34.979553°E), Southern Capital (Northern: Latitude:-15.682213°N, Longitude: 35.02676°E, Western: Latitude:-15.781682°N, Longitude: 34.952602°E, Southern: Latitude: -15.870204°N, Longitude: 35.04221°E, Eastern: Latitude: -15.787959°N, Longitude: 35.109501°E), Southern Smaller Settlements (Excluding Southern Capital Northern: Latitude:-13.517838°N, Longitude: 34.86969°E, Western: Latitude:-15.834536°N, Longitude: 34.248962°E, Southern: Latitude:-17.133333°N , Longitude: 35.283333°E, Eastern: Latitude:-14.883333°N , Longitude: 35.916667°E).</p> <p>The fuel specific geographic boundary for rural (firewood) users in Malawi are all settlements with a population under 4,765 as defined as urban in section A.2 of the PoA-DD.</p>	

<sup>1</sup> In the northern areas (Northern capital and Northern smaller settlements) there are no statistical differences according to the baseline study report and thus can be considered as a single homogeneous cluster. See Annex for full baseline reports.

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	<p>The fuel specific geographic boundary for urban (charcoal) users in Zambia includes all cities with populations greater than 10,000 except for the following exclusions: Petauke in Eastern province (Northern: Latitude:-14.225949°N , Longitude: 31.331414°E, Eastern: Latitude: -14.251073°N, 31.362133°E, Southern: Latitude: -14.27137°N, Longitude: 31.321964°E, Western: Latitude:-14.240757°N, Longitude: 31.298618°E) and neighbourhoods in Livingstone (Zambezi (AKA Dambwa Central) (Northern: Latitude:-17.854434°N, Longitude: 25.841939°E, Western: Latitude:-17.860071°N, Longitude: 25.836396°E, Southern: Latitude:-17.861950°N, Longitude: 25.847887°E, Eastern: Latitude:-17.857436°N, Longitude: 25.848938°E), Kariba (Northern: Latitude:-17.857416°N, Longitude: 25.850780°E, Western: Latitude: -17.859662°N, Longitude: 25.845587°E, Southern: Latitude: -17.861991°N, Longitude: 25.850952°E, Eastern: Latitude: -17.859867°N, Longitude: 25.855139°E), Lizuma (AKA Dambwa North) (Northern: Latitude: -17.836092°N, Longitude: 25.82516°E, Western: Latitude:-17.838584°N, Longitude: 25.824022°E, Southern: Latitude: -17.854434°N, Longitude: 25.839643°E, Eastern: Latitude: -17.848061°N , Longitude: 25.843077°E) and Akapelwa (Northern: Latitude: -17.840177°N, 25.85353 °E, Western: Latitude: -17.841689°N , Longitude: 25.847801°E, Southern: Latitude: -17.850043°N, Longitude: 25.860654°E, Eastern: Latitude: -17.846999°N, Longitude: 25.861473°E)). In addition there is a wet zone divided into two areas which are defined as a separate fuel specific geographic areas (Area 1: , Northern: Latitude: -10.898042°N, Longitude: 24.038086°E, Western: Latitude: -12.533115°N, Longitude: 23.90625°E, Southern: Latitude: -13.496473°N, Longitude: 26.828613°E, Eastern: Latitude: -12.961736°N , Longitude: 28.630371°E, Area 2: Northern: Latitude: -9.21056°N, Longitude: 29.311523°E, Western: Latitude: -9.882275°N , Longitude: 28.630371°E, Southern: Latitude: -12.189704°N, Longitude: 29.597168°E, Eastern: Latitude: -9.968851°N, Longitude: 32.274169°E). All urban areas greater than 5,000 and less than 10,000 are excluded from the project boundary in Zambia.</p> <p>The fuel specific geographic boundary for rural (firewood) users in Zambia are all areas outside of urban areas with a population of more than 5,000 as defined as urban in section A.2 of the PoA-DD.</p>	

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Corrective Action Requests by validation team		
Assessment Means of validation	<p>The DOE by assessing the revised PoA-DD confirms that the information presented in the revised PoA-DD regarding the boundary for the PoA in terms of geographical area is now consistent with the information provided in the baseline study (survey) reports and transparent.</p> <p>Amendments include amongst others the followings:</p> <ul style="list-style-type: none"> <li>-The project boundary in section A.5. of the revised PoA-DD is defined now fuel type specific for each of the host countries and considers as well the definitions of rural and urban settings.</li> <li>-Section A.5. of the revised PoA-DD mentions the areas which have been excluded. Those excluded areas have been verified by the DOE to be in line with the baseline study (survey) reports and GPS coordinates have been verified through print-screens of Google Maps (IRL 12 and 13).</li> <li>-It is clear now how 'urban' and 'rural' in each of the countries is defined. The DOE by assessing the United Nations Demographic Yearbook (IRL 86) confirms the correctness of the definitions.</li> </ul>	
Adjustment on project design	PoA-DD has been revised.	

Clarification Requests by validation team		
	Comments and Results	Conclusion and IRL
Issue	LoAs and Modalities of communication (MoC) are missing.	CR is closed. 54,101,102,103 <input checked="" type="checkbox"/>
Requirement	<p>VVS §38 "The DOE shall determine whether the designated national authority (DNA) of each Party indicated as being involved in the proposed CDM Program activity in the POA-DD has provided a written letter of approval."</p> <p>VVS §53 "The DOE shall validate the corporate identity of all project participants and focal points included in the Modalities of Communication (MoC) statement, as well as the personal</p>	

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Clarification Requests by validation team		
	identities, including specimen signatures and employment status, of their authorized signatories.”	
Corrective Action Request	<p><b><u>Clarification Request No. 1</u></b></p> <p>The PP is requested to provide the LoAs as well as the MoC together with the necessary evidence as per §54 of the VVS.</p>	
Response	<p>The LoAs are currently being requested and will be provided to the DOE as soon as possible. The MoC has now been provided to the DOE.</p> <p><b>2<sup>nd</sup> DOE Request:</b></p> <p>LoAs shall be submitted once available. MoC has been submitted however has not been signed yet and dates are still missing. Besides, the necessary evidence as per §54 of the VVS is missing.</p> <p><b>2<sup>nd</sup> PP response:</b></p> <p>LoAs of Republic of Malawi, Republic of Zambia and Sweden have been submitted. The MoC has now been signed and dated with the necessary evidence.</p>	
Assessment Means of validation	<p><b>Conclusion (after 2<sup>nd</sup> DOE Request):</b></p> <p>The signed MoC has been submitted to the DOE and was verified by the DOE to be in line with the requirements (IRL 54).</p> <p>The LoAs of Republic of Malawi, Republic of Zambia and Sweden have been submitted to the DOE and were verified by the DOE to be in line with the requirements (IRL 101,102,103).</p>	
Adjustment on project design	Not applicable	

Clarification Requests by validation team		
	Comments and Results	Conclusion and IRL
Issue	Some of the information presented in the PoA-DD is insufficient or not clear enough to determine whether the applicable CDM requirements regarding completeness, consistency and	CR is closed.

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Clarification Requests by validation team		
	<p>transparency have been met. Some examples of unclear information are as follows:</p> <ul style="list-style-type: none"> <li>-The eligibility criterion 2 excludes users which has been received/purchased an ICS due to a government or NGO programme even though the baseline study reports do not exclude improved cook stoves in their surveys.</li> <li>- Sections of the SSC PoA-DD (as well as SSC CPA-DD) (in particular Appendix 3, 4 and 5) which are not applicable are not explicitly stated that the sections are left blank intentionally.</li> <li>-Year of publication of the referenced documentation National Programme of Sustainable Consumption and Production (Zambia) and Sixth National Development Plan (Zambia) is missing.</li> <li>-It is not clear why the reference of the National Energy Policy, Zambia is not mentioned in the PoA-DD (section B.1.). Besides, a description is missing in section B.1. of the PoA-DD that in the absence of the CDM PoA, none of the implemented CPAs would occur.</li> <li>-It is not clear why the items 'Distribution and monitoring database', 'spot checking of ICS (ongoing)' and 'Data quality, consistency and duplication checks' mentioned in the beginning of section B.7.2. are not further explained.</li> <li>-The national newspaper ("The Nation" and "The Daily Times") advertisements on 18/04/2013 and 25/04/2013 presented to the DOE during the on-site visit are not mentioned in section F of the PoA-DD.</li> <li>-It is not clear why PP uses for Malawi cooking fuel data from the 2008 Population and Housing Census even though more recent data from the Malawi Demographic and Health Survey (2010) is available at <a href="http://www.nsomalawi.mw/index.php/2010-malawi-demographic-and-health-survey-preliminary-report.html">http://www.nsomalawi.mw/index.php/2010-malawi-demographic-and-health-survey-preliminary-report.html</a> [accessed on 22/05/2013].</li> </ul>	<p>28,29,42,53,75,83,84,87,89,92,93,94</p> <p><input checked="" type="checkbox"/></p>
Requirement	<p>VVS, § 62, Guidelines for completing the PoA-DD form for small-scale CDM PoAs, Project standard, §16 Completeness, §17 Consistency, §19 Transparency</p> <p>VVS, §26 "The DOE shall raise a clarification request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met".</p>	
Clarification Request	<p><b><u>Clarification Request No. 2</u></b></p> <p>The PP is requested to provide clear and sufficient information as part of this response and/or as within the revised documents in order to allow the DOE to determine whether the applicable CDM requirements have been met.</p>	
Response	All of the information presented in the PoA-DD has now been made sufficient and clear to de-	

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Clarification Requests by validation team		
	<p>termine whether the applicable CDM requirements regarding completeness, consistency and transparency have been met. Amendments include:</p> <ul style="list-style-type: none"> <li>-The clause in eligibility criterion 2 that excludes users which have received/purchased an ICS due to a government or NGO programme has now been deleted. Similar clauses in other sections have also been deleted.</li> <li>- All relevant sections and appendixes of the PoA-DD and CPA-DD have now been marked non applicable.</li> <li>-The year of publication of the referenced documentation National Programme of Sustainable Consumption and Production (Zambia) and Sixth National Development Plan (Zambia) has now been included.</li> <li>-A reference to the National Energy Policy, Zambia has now been included in the PoA-DD (section B.1.). A description has been added in section B.1. of the PoA-DD stating that in the absence of the CDM PoA, none of the implemented CPAs would occur.</li> <li>-The items 'Distribution and monitoring database', 'spot checking of ICS (on-going)' and 'Data quality, consistency and duplication checks' have now been included under the heading 'Data collection procedures' in section B.7.2. and have been further explained:</li> </ul> <p><b>CPA-I: User registers stove:</b> CPA implementer will collect/receive the necessary information requested on the Registration Card from the user. Means of collecting this information can be through a physical Registration Card filled by CPA-I staff, retailers, end-users or partner organization's staff, or through the use of ICTs or SMS. CPA Implementers' staff shall double check the accuracy of information provided, and request for field staff additional clarifications if needed;</p> <p><b>CPA-I: Data logged into database:</b> CPA implementer trained staff will input the data in the database either manually (if data collected from physical Registration Card) or this will be automatically input if data was collected using ICTs or SMS. CPA implementer staff shall double check the information included on the database and check for duplications. Any duplicate information shall be investigated and errors corrected or excluded from the database if it is a true</p>	

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Clarification Requests by validation team		
	<p>duplicate entry.</p> <p><b>CPA-I: Renewable biomass supplied to users (ongoing):</b> The CPA implementer will supply renewable biomass to users. CPA implementers will record all renewable biomass distributed from their premises. Depending on the CPA implementer business model this distribution may be to suppliers, retailers or end users. In cases where renewable biomass is not distributed directly to end users and hence there is a supply chain it is desirable to employ a system that will capture records of delivery to end users.</p> <p>All values will be entered into the database. Where and when information is recorded at point of delivery to an end user, this acts as additional evidence of stove operation and provides a cross-check the information on the database. Any inconsistencies found (eg. change in the address of a user) will be updated on the database.</p> <p><b>CPA-I: Monitoring:</b> CPA implementer will follow the requirements as per PoA-DD to collect the necessary information for a monitoring report. Spot checking of ICS will be ongoing throughout the monitoring period to check for continued use and to ensure data quality and consistency, also to check that records are not duplicated.</p> <p><b>CME: Preparation of monitoring report:</b> the CME will prepare the final monitoring report to be provided to the verifier DOE for verification of emission reductions. A copy of the monitoring report will remain with the CME.</p> <p>The CME will coordinate and manage each CPA Implementer and assist them in implementing each element of the monitoring plan. The monitoring plan shall be elaborated per CPA an in accordance with the Sampling Plan below. To ensure the full integration of local structures, implementation of the project is accompanied by capacity building efforts. This will ensure optimal usage by the future user community.</p> <p>All data will be stored electronically for more than two years after the end of the crediting period or the last issuance of CERs whichever occurs later. A redundant storage backup system ensures against data loss.</p> <p>-The national newspaper ("The Nation" and "The Daily Times") advertisements on 18/04/2013 and 25/04/2013 presented to the DOE during the on-site visit are now mentioned in section F of the PoA-DD.</p> <p>-The PP has amended the PoA-DD in section A.2. footnote 1 to refer to the more recent data</p>	

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Clarification Requests by validation team		
	from the Malawi Demographic and Health Survey (2010) deleting the reference to the 2008 Population and Housing Census.	
Assessment Means of validation	<p>The DOE by assessing the revised PoA-DD confirms that all information presented in the revised PoA-DD is complete, consistent, clear and transparent. Hence, it can be concluded that the applicable CDM requirements regarding completeness, consistency and transparency have been met. Amendments include amongst others the followings:</p> <ul style="list-style-type: none"> <li>-The eligibility criterion 2 was revised. The clause describing the exclusion of users which have received/purchased an ICS due to a government or NGO programme has now been deleted. Hence the PoA-DD is consistent with the baseline study reports.</li> <li>- Sections of the SSC PoA-DD (as well as SSC CPA-DD) (in particular Appendix 3, 4 and 5) which are not applicable are now explicitly mentioned as “not applicable”.</li> <li>-Year of publication of the referenced documentation National Programme of Sustainable Consumption and Production (Zambia) (IRL 83) and Sixth National Development Plan (Zambia) (IRL 84) is mentioned now and has been cross-checked with the respective documents to be correct.</li> <li>-The reference of the National Energy Policy, Zambia (IRL 75) is now mentioned in the PoA-DD (section B.1.) and the year of publication has been cross-checked by the DOE through the Policy document. The DOE confirms that a description has been added in section B.1. of the PoA-DD which demonstrates that in the absence of the CDM PoA, none of the implemented CPAs would occur. The supporting documentation related to this description (IRL 28, 29) has been checked by the DOE and the description was found to be credible.</li> <li>-Information regarding distribution, spot checking of ICS, data quality and consistency is provided under the section “Data collection procedures” in section B.7.2.</li> <li>-The Malawian national newspaper (“The Nation” and “The Daily Times”) advertisements on 18/04/2013 and 25/04/2013 (IRL 53) presented to the DOE during the on-site visit are now mentioned in section F of the PoA-DD.</li> <li>-PP uses now for Malawi cooking fuel data the more recent data from the Malawi Demographic and Health Survey (2010) (IRL 42) which is available at <a href="http://www.nsomalawi.mw/index.php/2010-malawi-demographic-and-health-survey-preliminary-report.html">http://www.nsomalawi.mw/index.php/2010-malawi-demographic-and-health-survey-preliminary-report.html</a> [accessed on 22/05/2013].</li> </ul>	

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Clarification Requests by validation team		
Adjustment on project design	PoA-DD has been revised.	

Clarification Requests by validation team		
	Comments and Results	Conclusion and IRL
Issue	<p>The Malawian DNA (at the same time Department of Environmental Affairs) informed during an interview with the DOE that an Environmental Management Plan (a simplified form of an environmental impact assessment) has to be presented either at PoA level or for each CPA (depending on whether PP carry out environmental analysis at PoA or CPA level).</p> <p>Information from the Zambia Environmental Management Agency (ZEMA) is still missing which confirms whether or not an environmental clearance is necessary for each CPA.</p>	<p>CR is closed. 50,76 <input checked="" type="checkbox"/></p>
Requirement	VVS§135 "The DOE shall also determine whether the project participants conducted an environmental impact assessment, if required to do so by the host Party, in accordance with the host Party's procedures."	
Clarification Request	<p><b><u>Clarification Request No. 3</u></b></p> <p>The PP is requested to provide the Environmental Management Plan (requested by Department of Environmental Affairs/Malawian DNA) to the DOE and information from the Zambia Environmental Management Agency (ZEMA) which confirms whether or not an environmental clearance is necessary for each CPA.</p>	
Response	<p>An Environmental Management Plan will be presented at PoA level and will be included as part of the submission to the Malawian DNA for a LoA. A copy will be sent to the DOE when available.</p> <p>Confirmation from ZEMA or another appropriate agency regarding environmental clearance will be provided to the DOE when available.</p> <p><b>2<sup>nd</sup> DOE Request:</b> CR remains open, since Environmental Management Plan and confirmation from ZEMA/another appropriate agency regarding environmental clearance in Zambia are still pend-</p>	

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Clarification Requests by validation team		
	ing. <b>2<sup>nd</sup> PP response:</b> Environmental Management Plan and confirmation from ZEMA regarding environmental clearance in Zambia have now been provided.	
Assessment Means of validation	The DOE confirms that an environmental management plan (which has to be submitted to the Malawian DNA for requesting the LoA) (IRL 50) and letter from ZEMA (IRL 76) have been submitted to the DOE. The letter from ZEMA mentions that a detailed description of the project has to be submitted before an appropriate decision is made on whether or not an EIA is necessary and in order to issue environmental clearance. This is reflected in eligibility criterion 7 which requires an environmental clearance for each CPA located in the host country Republic of Zambia. The DOE will verify at each inclusion of any CPA located in the host country Republic of Zambia whether such an environmental clearance is available.	
Adjustment on design documents	Not applicable	

Forward Action Requests by audit team		
	Comments and Results	
Issue	Not applicable since no Forward Action request.	<input checked="" type="checkbox"/>
Requirement		
Forward Action Request		

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CPA Title: CDM Africa Sustainable Energy Programme in Lilongwe, Malawi CPA-001

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Definitions	
<b>Shall / Should / May</b>	In addition to the definitions contained in the Glossary of CDM terms, the following terms apply in the VVS (VVS/10): <u>Shall</u> is used to indicate requirements to be followed; <u>Should</u> is used to indicate that among several possibilities, one course of action is recommended as particularly suitable; <u>May</u> is used to indicate what is permitted.
<b>Credible</b>	Information is credible if it is authentic and is able to inspire belief or trust, and the willingness of persons to accept the quality of evidence. (VVS/17)
<b>Reliable</b>	Information is reliable if the quality of evidence is accurate and credible and able to yield the same results on a repeated basis. (VVS/17)
<b>CAR</b>	The DOE shall raise a corrective action request (CAR) if one of the following situations occurs (VVS/27): (a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable, verifiable and additional emission reductions; (b) The applicable CDM requirements have not been met; (c) There is a risk that emission reductions cannot be monitored or calculated.
<b>CL</b>	The DOE shall raise a clarification request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. (VVS/26)
<b>FAR</b>	The DOE shall raise a forward action request (FAR) during validation to identify issues related to project implementation that require review during the first verification of the project activity. The DOE shall not raise a FAR that relates to the CDM requirements for registration (VVS/27)

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CPA Title: CDM Africa Sustainable Energy Programme in Lilongwe, Malawi CPA-001

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### Compilation and Resolutions of CARs, CRs of the CPA-DD

Corrective Action Requests by validation team		
	Comments and Results	Conclusion and IRL
Issue	<p>Some of the information presented in the CPA-DD is not consistent between different sections of the CPA-DD or between CPA-DD and other documents or information provided during the on-site visit and hence is not in line with the CDM requirement of consistency. Some examples of inconsistent information are as follows:</p> <ul style="list-style-type: none"> <li>-Section A.3. mentions 45 MW<sub>th</sub> of 'thermal energy savings' whereas other sections mention 'thermal capacity';</li> <li>-Start of the crediting period within the CPA-DD;</li> <li>-Annual GHG emission reductions between CPA-DD and ER calculation excel spreadsheet;</li> <li>-Title of the methodology is not consistent with the one stated in the applied methodology;</li> <li>-Inclusion of N<sub>2</sub>O emissions due to use of fertilisers in the CPA-DD whereas in the PoA-DD the same are excluded;</li> <li>-The statement in section A.5. that "most homes have some access to electricity whereas the 1<sup>st</sup> paragraph in section A.5. mentions that "only about 5% of all households and 30% of urban households have access to electricity";</li> <li>-The information in A.5. that 'the battery is capable of powering the blower unit for a week or more for normal family cooking demand' is not consistent with the letter provided by the manufacturer of the ACE stove which mentions that 'the fully charged battery is capable of powering the blower unit for 3 weeks or more for normal family cooking demand';</li> <li>-During the on-site visit, the DOE was informed by the CME/CPA implementer that the entity implementing the 1<sup>st</sup> CPA is denominated 'Total Land Care Green Ltd.' (instead of as mentioned in the CPA-DD 'Total Land Care, Malawi').</li> </ul>	<p>CAR is closed. 1,2,87,95 <input checked="" type="checkbox"/></p>
Requirement	<p>VVS §17d "Assess the accuracy, conservativeness, relevance, completeness, consistency, and transparency of the information provided by project participants".</p> <p>Project standard, §17 Consistency</p>	
Corrective Action Request	<p><b><u>Corrective Action Request No.1</u></b></p> <p>The PP is requested to provide consistent information as part of this response and/or as within the revised documents in order to allow the DOE to determine whether the applicable CDM</p>	

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CPA Title: CDM Africa Sustainable Energy Programme in Lilongwe, Malawi CPA-001

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Corrective Action Requests by validation team		
	requirements have been met.	
Response	<p>Amendments have been made so that the information presented in the CPA-DD is consistent between different sections of the CPA-DD and between CPA-DD and other documents and information provided during the on-site visit, this includes relevant changes that were made to the PoA-DD. Amendments to insure consistency include:</p> <ul style="list-style-type: none"> <li>-In section A.3. the mention of 'thermal energy savings' was included in error and has been replaced with 'thermal capacity'.</li> <li>-The start of the crediting period within the CPA-DD has been amended.</li> <li>-Due to changes in the method for calculating emission reductions as determined on PoA level the revised ER calculation spreadsheet has now been provided to the DOE. The figures in the spreadsheet are now consistent with the CPA-DD.</li> <li>-The title of the methodology has been made consistent with the one stated in the applied methodology.</li> <li>-The inclusion of N<sub>2</sub>O emissions due to use of fertilisers in the CPA-DD was in error. This has therefore been removed to insure consistency with the PoA-DD. The general guidance on leakage in biomass project activities (Version 03) EB47 Annex 28 indicates that fertiliser use does not have to be considered for projects using biomass residues or wastes.</li> <li>-The inconsistency between the statements in section A.5. has been resolved by indicating most homes have indirect access through community / village charging points.</li> <li>-The information in A.5 has been amended generally to reflect the information contained in the letter from the manufacturer including that 'the a fully charged battery is capable of powering the blower unit for three weeks or more for normal family cooking demand'. This has also been amended in the PoA-DD</li> <li>-The CPA implementer has been amended to 'Total Land Care Green Ltd' (instead of the project participant in the PoA 'Total Land Care, Malawi').</li> </ul>	
Assessment Means of validation	<p>The DOE by assessing the revised CPA-DD confirms that the information presented is consistent between different sections of the CPA-DD and between CPA-DD and other documents/information provided during the on-site visit. Hence is in line with the CDM requirement of consistency. Amendments to ensure consistency include amongst others:</p> <ul style="list-style-type: none"> <li>-In section A.3. the term 'thermal energy savings' (which was erroneously mentioned) was re-</li> </ul>	

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Corrective Action Requests by validation team		
	<p>placed by 'installed/rated capacity' hence is consistent throughout the CPA-DD now;</p> <ul style="list-style-type: none"> <li>-Information regarding start of the crediting period is now consistent within the CPA-DD;</li> <li>-Annual GHG emission reductions between CPA-DD and ER calculation excel spreadsheet are consistent now;</li> <li>-Title of the methodology is now consistent with the one stated in the applied methodology;</li> <li>-The inclusion of N<sub>2</sub>O emissions due to use of fertilisers was incorrect in the CPA-DD. The DOE by assessing EB47, Annex 28 confirms that fertiliser use does not have to be considered in the given programme since it involves the use of biomass residues or wastes.</li> <li>-Regarding the statement of electricity access, the same has been revised making clear that most homes have indirect access through community or village charging points.</li> <li>-The information in section A.5. of the CPA-DD follows now the one given in the letter provided by the manufacturer of the ACE stove that 'the fully charged battery is capable of powering the blower unit for 3 weeks or more for normal family cooking demand';</li> <li>-The entity implementing the 1<sup>st</sup> CPA is denominated as 'Total Land Care Green Ltd.' now in the CPA-DD and thus in line with the information provided during the DOE on-site visit.</li> </ul>	
Adjustment on project design	CPA-DD and ER calculation excel spreadsheet have been revised.	

Corrective Action Requests by validation team		
	Comments and Results	Conclusion and IRL
Issue	<p>The means of validation (mentioned in CPA-DD, version 01 as the 'information requirement') for checking the compliance of each of the eligibility criteria is not sufficiently detailed, inaccurate or inconsistent with the PoA-DD. Some examples are as follows:</p> <ul style="list-style-type: none"> <li>-For criterion 3 (in version 01 of the CPA-DD) nothing is mentioned how the description of the ICS to be implemented can be validated;</li> <li>-For criterion 5 (in version 01 of the CPA-DD), item 1, the means of validation are not consis-</li> </ul>	<p>CAR is closed. 14,19,82,87,95 ☑</p>

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Corrective Action Requests by validation team		
	<p>tent with the PoA-DD;</p> <p>-For criterion 15 (in version 01 of the CPA-DD) the figure for maximum number of ICS is not consistent with the ER excel calculation sheet;</p>	
Requirement	<p>VVS § 187 “The DOE shall assess any proposed CPA that a coordinating/managing entity wishes to include in the PoA, to determine whether it complies with the eligibility criteria specified in the CDM-PoA-DD”.</p> <p>PS §188 “To include a CPA in a registered CDM PoA, the coordinating/managing entity shall ensure that the proposed CPA meets all applicable requirements, including the eligibility criteria for inclusion of a CPA under the PoA.”</p>	
Corrective Action Request	<p><b><u>Corrective Action Request No.2</u></b></p> <p>The PP is requested to provide clear, complete and consistent information as part of this response and/or as within the revised documents in order to allow the DOE to determine whether the applicable CDM requirements have been met.</p>	
Response	<p>The means of validation for checking the compliance of each of the eligibility criteria have been amended to be sufficiently detailed, accurate and consistent with the PoA-DD. Amendments have been made to all criteria major amendments are as follows:</p> <ul style="list-style-type: none"> <li>- Criterion 3 has been amended as follows: “Interviews with government officials evidencing that there are no applicable national standards were undertaken by the DOE. A detailed description of the ICS is provided in section A.5. of the CPA-DD based on information provided by the manufacturer.</li> <li>-Criterion 5, item 1, has been amended to make it consistent with the PoA-DD: “The business plan and management plan from the CPA implementer and TLC Malawi has been provided to evidence the supply of renewable biomass and details of the ACE stoves that will be used as provided by the manufacturer. The displacement of NRB is evidenced by the fNRB in the C4 EcoSolutions report, Improved Cooking Stove Programme (Malawi): Calculating the National Non-Renewable Biomass fraction (fNRB), March 2012.”</li> <li>-Criterion 13 (previously criterion 15) has been amended so that the maximum number of ICS is consistent with the ER excel calculation sheet at 14,920.</li> </ul>	

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Corrective Action Requests by validation team		
Assessment Means of validation	<p>The DOE by assessing the revised CPA-DD confirms that the means of validation in the revised CPA-DD for checking the compliance of each of the eligibility criteria is now sufficiently detailed, accurate and consistent with the PoA-DD. Amendments include amongst others:</p> <ul style="list-style-type: none"> <li>-For criterion 3: A description of the ICS is provided in section A.5. of the CPA-DD based on information provided by the manufacturer. The DOE by assessing the technical specifications (IRL 19) confirms that the description of the ICS in the CPA-DD is in line with the technical specifications provided by the manufacturer. Furthermore, the DOE was informed in on-site interviews (by the coordinator of the National Cookstoves Task Force in Malawi and by the assistant director of the Department of Energy) that no national standards for cookstoves (including for the ACE stove used in the 1<sup>st</sup> CPA and further described in section A.5. of the CPA-DD) exist in Malawi.</li> <li>-For criterion 5: Item 1, means of validation in the revised CPA-DD is consistent with the PoA-DD now. Evidence for the supply of renewable biomass and details of the ICS that burn the fuel have been validated by the DOE through the business plan (IRL 82), management plan (IRL 14) and technical specifications of the ICS provided by the manufacturer (IRL 19).</li> <li>-For criterion 13 (previously criterion 15): the figure for maximum number of ICS is now consistent with the ER excel calculation sheet; The DOE by assessing the revised CPA-DD and final ER excel calculation sheet confirms the same.</li> </ul>	
Adjustment on project design	CPA-DD and ER calculation excel spreadsheet have been revised.	

Corrective Action Requests by validation team		
	Comments and Results	Conclusion and IRL
Issue	Some of the information presented in the CPA-DD regarding the emission reduction calculation is incomplete, not transparent or inconsistent, hence it is not possible to determine whether the applicable CDM requirements regarding completeness, consistency and transparency have been met.	<p>CAR is closed. 87,95 <input checked="" type="checkbox"/></p>

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Corrective Action Requests by validation team		
	<p>Some examples are as follows:</p> <ul style="list-style-type: none"> <li>-Section D.6.1. of the CPA-DD does not mention anything regarding the treatment of leakage.</li> <li>-The reference of formulae to section B.6.3. is not correct since there is no such section in the CPA-DD and PoA-DD.</li> <li>-The statement that ‘the fraction of non-renewable biomass will be estimated separately for each country....’ is not consistent with the PoA-DD which mentions the parameter <math>f_{NRBy}</math> as a parameter determined and reported ex-ante.</li> <li>-The formulae and calculations with the specific figures for the 1<sup>st</sup> CPA are missing in section D.6.3.; the formulae are indicated just in general form. Besides, some of the input parameters like e.g. ‘daily hours of cooking’ and ‘daily biomass consumption’ are not properly referenced in the ER calculation excel spreadsheet.</li> <li>-The calculation of the threshold limit is not indicated CPA specific.</li> <li>-The information in section D.7.2. that ‘the amount of energy HGp,y will be calculated as per the equations in section B.6.3.’ is inconsistent with other sections which indicate option (a) of paragraph 6 as the relevant option to calculate By in the 1<sup>st</sup> CPA.</li> <li>-The figure for households using two stoves indicated in the ER calculation excel spreadsheet is not consistent with the figure provided in the baseline study report (urban Malawi).</li> </ul>	
Requirement	<p>VVS §189 “The DOE shall assess the CDM-PoA-DD and the PoA-specific CDM-CPA-DD that is submitted by the coordinating/managing entity and shall confirm the framework developed for the implementation of the PoA, and defining a CPA under the PoA”.</p> <p>PS, §50 “Project participants shall provide ex ante calculations of baseline, project and leakage GHG emissions as well as GHG emission reductions of the proposed CDM project activity or CPA for each year of the crediting period, in accordance with the selected methodology(ies). Project participants shall describe all steps undertaken for these calculations and provide all results.”</p> <p>Project standard, §16 Completeness, §17 Consistency, §19 Transparency</p>	
Corrective Action Request	<p><b><u>Corrective Action Request No.3</u></b></p> <p>The PP is requested to provide clear, complete and consistent information as part of this re-</p>	

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Corrective Action Requests by validation team		
	<p>sponse and/or as within the revised documents in order to allow the DOE to determine whether the applicable CDM requirements have been met.</p>	
Response	<p>Amendments have been made to ensure the information presented in the CPA-DD regarding the emission reduction calculation is complete, transparent and consistent to make it possible to determine whether the applicable CDM requirements regarding completeness, consistency and transparency have been met. Some examples are as follows:</p> <ul style="list-style-type: none"> <li>-A leakage emission sections has now been added to Section D.6.1. of the CPA-DD and is in line with the PoA:</li> </ul> <p>“By is multiplied by a net to gross adjustment factor of 0.95 to account for leakages.</p> <p>The other source of leakage occurs if equipment currently being utilised is transferred from outside the boundary to the project activity. All ICS in the SSC-CPA will be newly manufactured/assembled or newly installed. Where second-hand/used ICS are distributed to an end-user the ICS will be from within the project (ie previously newly manufactured/assembled and either a demonstration model or transferred from one end-user within the project to another new or existing end-user). In both of these cases there will be no equipment (ICS) being utilized outside the project area (any project non-participant) that is transferred to the project area (included as an ICS in the database) so leakage defined in paragraph 11 of the AMS I.E (version 5) methodology is not considered. Where second-hand/used ICS are transferred within the project area (between end-user project participants) the database will be updated to reflect this change to ensure there is no double counting of ICS.”</p> <ul style="list-style-type: none"> <li>-This reference of formulae to section B.6.3. is not correct and has therefore been removed.</li> <li>-The statement that ‘the fraction of non-renewable biomass will be estimated separately for each country....’ is incorrect and therefore the tense has been changed to amend this inconsistency: “The fraction of non-renewable biomass is estimated separately for each country included in this PoA. As indicated in AMS I.E, Version 5, the estimation is determined by”</li> <li>-The formulae and calculations with the specific figures for the 1<sup>st</sup> CPA have now been added in section D.6.3.</li> </ul>	

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Corrective Action Requests by validation team		
	<ul style="list-style-type: none"> <li>-The calculation of the threshold limit is now indicated specifically for the first CPA. In addition all the input parameters like e.g. 'daily hours of cooking' and 'daily biomass consumption' are now properly referenced in the ER calculation excel spreadsheet.</li> <li>-The information in section D.7.2. that 'the amount of energy <math>HG_{p,y}</math> will be calculated as per the equations in section B.6.3.' was included in error and was therefore deleted.</li> <li>-The parameter <math>C_{p,y}</math> as indicated in the PoA-DD has been removed as all baseline surveys already took into account multiple stove use. This parameter has therefore been removed from the ER calculation excel spreadsheet. This was explained in more detail in the PoA.</li> </ul> <p><b>2<sup>nd</sup> DOE Request:</b></p> <ul style="list-style-type: none"> <li>-The statement regarding fNRB mentions the estimation of the fraction of non-renewable biomass for each country even though the 1<sup>st</sup> CPA is implemented in one country (Malawi) and the national default value as per EB67, Annex 22 is applied. Clarity shall be provided.</li> </ul> <p><b>2<sup>nd</sup> PP response:</b></p> <ul style="list-style-type: none"> <li>-Statement has been amended to: 'The fraction of non-renewable biomass for Malawi is taken from the default value as found at: <a href="http://cdm.unfccc.int/DNA/fNRB/index.html">http://cdm.unfccc.int/DNA/fNRB/index.html</a>'</li> </ul>	
Assessment Means of validation	<p>The DOE by assessing the revised CPA-DD and ER calculation excel spreadsheet confirms that information related to emission reduction calculation is complete, transparent and consistent. Hence the DOE concludes that the applicable CDM requirements regarding completeness, consistency and transparency have been met. Amendments include amongst others:</p> <ul style="list-style-type: none"> <li>-Section D.6.1. of the revised CPA-DD mentions now the application of the net to gross adjustment factor of 0.95 to account for leakages. Further is explained why leakage as per paragraph 11 of the applied methodology is not applicable to the CPA. The DOE by assessing the revised CPA-DD and due to its sectoral expertise confirms that the explanation is deemed to be appropriate and credible to conclude that no leakage as per paragraph 11 of the applied methodology has to be considered. The DOE further confirms that the application of the default value of 0.95 is in line with the methodology.</li> <li>-The reference of formulae to section B.6.3. has been removed since the same was not correct.</li> </ul>	

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Corrective Action Requests by validation team		
	<ul style="list-style-type: none"> <li>-The formulae and calculations with the specific figures for the 1<sup>st</sup> CPA have been included in section D.6.3. of the CPA-DD. Besides, all relevant input parameters are now properly referenced in the ER calculation excel spreadsheet.</li> <li>-The calculation of the threshold limit is now indicated CPA specific.</li> <li>-The information in section D.7.2. related to 'the amount of energy HG<sub>p,y</sub> will be calculated as per the equations in section B.6.3.' has been removed since this information was erroneously mentioned before. As clearly demonstrated in the CPA-DD, option (a) of paragraph 6 as the relevant option to calculate By has been chosen in the 1<sup>st</sup> CPA.</li> <li>-The inconsistency related to the figure for households using two stoves indicated in the ER calculation excel spreadsheet is not relevant anymore since the parameter C<sub>p,y</sub> has been removed from the monitoring (sampling) plan. Since there is no methodology requirement for monitoring this parameter, the same is accepted by the DOE.</li> </ul> <p><b>Conclusion (after 2<sup>nd</sup> DOE Request):</b></p> <ul style="list-style-type: none"> <li>-The statement regarding fNRB has been amended in the 1<sup>st</sup> CPA mentioning now that the fraction of non-renewable biomass for Malawi is taken from the national default values of EB67, Annex 22.</li> </ul>	
Adjustment on project design	CPA-DD and ER calculation excel spreadsheet have been revised.	

Clarification Requests by validation team		
	Comments and Results	Conclusion and IRL
Issue	<p>Some of the information presented in the CPA-DD is insufficient or not clear enough to determine whether the applicable CDM requirements regarding completeness and transparency have been met. Some examples of unclear information are as follows:</p> <ul style="list-style-type: none"> <li>-The values applied as an estimate for the parameters to be monitored are mostly missing in section D.7.1. of the CPA-DD.</li> </ul>	<p>CR is closed. 3,14,19,28,61,82,87,92 ☑</p>

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Clarification Requests by validation team		
	<ul style="list-style-type: none"> <li>-It is not clear why the efficiency of the system being replaced is assumed to be 0.10 for the 1<sup>st</sup> CPA (the applied methodology mentions that a default value 0.10 may be optionally used if the replaced system is a three stone fire, or a conventional system with no improved combustion air supply or flue gas ventilation system, i.e. without a grate or a chimney) since the baseline study report (Table 3.1) of urban Malawi revealed that a large part of stove types used by households are improved cook-stoves and the same has been confirmed by the DOE when visiting households.</li> <li>-The 1<sup>st</sup> CPA mentions that renewable biomass (RB) sources of the 1<sup>st</sup> CPA includes existing forest plantations, new short rotation plantations and municipal wood waste. However, during the on-site visit the CPA implementer informed that RB is sourced from existing forest plantations and new short and long term rotation plantations.</li> <li>-The CPA-DD does not mention the solar charge option which is indicated in the letter of the manufacturer of the ACE stove.</li> <li>-No CPA specific information regarding public funding is provided in section A.11. of the CPA-DD.</li> <li>-No documentation/references are provided in section D.2. of the CPA-DD for the 1<sup>st</sup> applicability criterion ('activities to displace the use of non-renewable biomass by introducing renewable energy technologies') even though the guidelines for completing the CPA-DD requires to 'explain documentation that has been used and provide references or include the documentation in Appendix 3'.</li> </ul>	
Requirement	Project standard, §16 Completeness, §17 Consistency, §19 Transparency; VVS §26 "The DOE shall raise a clarification request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met". EB66, Annex 17, Guidelines for completing the component project design document form for small-scale component project activities;	
Clarification Request	<p><b><u>Clarification Request No. 1</u></b></p> <p>The PP is requested to provide clear and sufficient information as part of this response and/or as within the revised documents in order to allow the DOE to determine whether the applicable CDM requirements have been met.</p>	

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Clarification Requests by validation team		
Response	<p>The information presented in the CPA-DD has been amended to be sufficient and clear to ensure that the CDM requirements regarding completeness and transparency have been met. Amendments include:</p> <ul style="list-style-type: none"> <li>-The values applied as an estimate for the parameters to be monitored are now included in section D.7.1. of the CPA-DD.</li> <li>-Since the baseline study report (Table 3.1) of urban Malawi revealed that a large part of stove types used by households are improved cook-stoves and the same has been confirmed by the DOE when visiting households the value for the old stove efficiency used when calculating <math>CAP_{stove}</math> has been changed to 0.2.</li> <li>-The 1st CPA now mentions that renewable biomass (RB) sources of the 1st CPA includes existing forest plantations and new short and long term rotation plantations.</li> <li>-The CPA-DD in section A.5 now mentions the solar charge option which is indicated in the letter of the manufacturer of the ACE stove.</li> <li>- CPA specific information regarding public funding is now provided in section A.11. of the CPA-DD:</li> </ul> <p>“No public funding from Annex I parties to the United Nations Framework Convention on Climate Change (UNFCCC) was made or will be made available for the proposed CPA.”</p> <p>-Documentation/references are now provided in section D.2. of the CPA-DD for the 1st applicability criterion including an explanation of the documentation that has been used and references have been provided:</p> <p>“The business plan and management plan from the CPA implementer has been provided to evidence the supply of renewable biomass and details of the ACE stoves that will be used. The displacement of NRB is evidenced by the fNRB in the C4 EcoSolutions Report, Improved Cooking Stove Programme (Malawi): Calculating the National Non-Renewable Biomass fraction (fNRB), March 2012.”</p>	
Assessment Means of validation	<p>The DOE by assessing the revised CPA-DD confirms that the information presented in the revised CPA-DD is complete and clear enough to determine that the applicable CDM requirements regarding completeness and transparency have been met. Amendments include amongst others:</p>	

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Clarification Requests by validation team		
	<ul style="list-style-type: none"> <li>-The values applied as an estimate for the parameters to be monitored have been added (where relevant) to section D.7.1. of the CPA-DD.</li> <li>-The efficiency of the system being replaced has been amended to 0.20 for the 1<sup>st</sup> CPA. This is a more conservative approach than the previously applied 0.10. The use of 0.20 is deemed to be more appropriate by the DOE than the value of 0.10 since the baseline study report (Table 3.1) (IRL 92) of urban Malawi revealed that a large part of stove types used by households are improved cook-stoves and the same has been confirmed by the DOE when visiting households.</li> <li>-The CPA-DD was amended mentioning now that renewable biomass (RB) for the 1<sup>st</sup> CPA is sourced from existing forest plantations and new short and long term rotation plantations. This is in line with the information provided by the CPA implementer during the DOE's on-site visit.</li> <li>-The revised CPA-DD mentions now the solar charge option which is in line with the letter of the manufacturer of the ACE stove (IRL 19).</li> <li>-CPA specific information regarding public funding is provided in section A.11. of the CPA-DD. It is stated that no public funding is being made available for the 1<sup>st</sup> CPA. This is further confirmed by a declaration signed by the CME (IRL 28).</li> <li>-The CPA-DD was amended and references for the 1<sup>st</sup> applicability criterion ('activities to displace the use of non-renewable biomass by introducing renewable energy technologies') are provided now. Evidence for the supply of renewable biomass and details of the ICS that burn the fuel have been validated by the DOE through the business plan (IRL 82), management plan (IRL 14) and technical specifications of the ICS provided by the manufacturer (IRL 19) respectively. The displacement of NRB is evidenced by the fNRB report provided by the 3<sup>rd</sup> party C4 EcoSolutions (IRL 61) and additionally through the national default value of 81% for fNRB approved by the Board for the Republic of Malawi (IRL 3).</li> </ul>	
Adjustment on design documents	CPA-DD has been revised.	

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Forward Action Requests by audit team		
	Comments and Results	
Issue	Not applicable since no Forward Action Request	<input checked="" type="checkbox"/>
Requirement		
Forward Action Request		



South Asia

## **Annex 2**

### **Information Reference List**

**Project title:** CDM Africa Sustainable Energy Programme

**Interviewed Persons during onsite assessment on 18/05/2013 to 23/05/2013**

Name	Function	Company
Mr. Ferreira, Eduardo	Vice President Operations	C-Quest Capital
Mr. Leckie, Stuart	Consultant	ABH Associates/Whave Solutions
Mr. Bunderson, Trent	Executive Director	Total LandCare Malawi
Mr. Gondwe, Vincent	Sales Representative	TLC Green Ltd.
Mr. Sukasuka, Topham	Assistant Director	Department of Energy, Malawi
Mr. Botha, Yamungu	Coordinator	National Cookstoves Task Force, Malawi
Mrs. Banda Najira, Shamiso	Chief Environmental Officer	CDM-DNA Focal Point / Department of Environmental Affairs, Malawi
Mr. Mwenechanya, Jarvis	Environmental Inspector	CDM-DNA Focal Point / Department of Environmental Affairs, Malawi
Mrs. Masupayi, Patricia	Chief Forestry Officer	Department of Forestry, Malawi
Mr. Kagulo, Henry	Forestry Officer	Department of Forestry, Malawi
Mr. Mwalweni, John	Forestry Officer	Department of Forestry, Malawi
Mr. Mwale, Paulos	Afforestation Manager	Total LandCare Malawi
Mr. Alcock, John	Harvesting Manager	Total LandCare Malawi
Mr. Bunderson, Richard	Project Manager	Total LandCare Malawi

**Other Interviewed Persons (not during onsite assessment):**

Name	Function	Institution/Company	Date of Interview
Not applicable			

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
0.	C-Quest Capital ABH Associates/Whave Solutions	GSP PoA-DD “CDM Africa Sustainable Energy Programme”, version 2 GSP CPA-DD “CDM Africa Sustainable Energy Programme in Lilongwe, Malawi CPA-001”, version 2 <a href="http://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/800PC9TDFW/PK3KSNWNQRIR57GYA921/view.html">http://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/800PC9TDFW/PK3KSNWNQRIR57GYA921/view.html</a>	02/05/2013	The PoA-DD (version 01, dated 25/01/2013) submitted for GSP did not contain the local stakeholder consultation information, thus PoA-DD together with CPA-DD were re-submitted for GSP with version 02
1.	UNFCCC	<a href="http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid04.pdf">http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid04.pdf</a> (General Guidance on Leakage in biomass project activities (Attachment C to Appendix B), EB47, Annex 28  <a href="http://cdm.unfccc.int/UserManagement/FileStorage/QNGFA8K67SJITCM/D3BP0V2X945LERW">http://cdm.unfccc.int/UserManagement/FileStorage/QNGFA8K67SJITCM/D3BP0V2X945LERW</a> (Clarification on the calculation of the thermal output of a cook stove for applicability of small-scale limit of 45 MWth), dated 22/10/2010  <a href="http://cdm.unfccc.int/UserManagement/FileStorage/0CS7QLNBHZFYUG/MK8T4EAJ35OWRVXI">http://cdm.unfccc.int/UserManagement/FileStorage/0CS7QLNBHZFYUG/MK8T4EAJ35OWRVXI</a> (Clarification on monitoring the quantity of	Various, see column “Title/Type of Document. Publication place”	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
		biomass and the fraction of non-renewable biomass under AMS-I.E), dated 06/07/2011  <a href="http://cdm.unfccc.int/UserManagement/FileStorage/B60VGAEXHK9LOQ14UY52NI3PTM7ZJW">http://cdm.unfccc.int/UserManagement/FileStorage/B60VGAEXHK9LOQ14UY52NI3PTM7ZJW</a> (Revision of AMS-I.E to allow simplified options to determine the quantity of biomass/biogas), dated 24/06/2011		
2.	UNFCCC	Approved Small Scale Methodology AMS.I.E. ver. 05.0, "Switch from non-renewable biomass for thermal applications by the user"	EB68	
3.	UNFCCC	Default values of fraction of non-renewable biomass for least developed countries and small island developing states	EB67, Annex 22	
4.	UNFCCC	Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities, version 03.0	EB74, Annex 5	
5.	UNFCCC	Standard for the sampling and surveys for CDM project activities and programme of activities, version 04.1	EB74, Annex 6	Sampling
6.	UNFCCC	CDM validation and verification standard, version 05.0	EB75, Annex 5	
7.	UNFCCC	CDM project standard, version 05.0	EB75, Annex 4	
8.	UNFCCC	CDM project cycle procedure, version 05.0	EB75, Annex 6	
9.	UNFCCC	Guidelines on assessment of debundling for SSC project activities (version 13)	EB 54, Annex 13	
10.	UNFCCC	Guidelines for sampling and surveys for CDM project activities and PoAs, version 03.0	EB75, Annex 8	Sampling

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
11.	Philips Electronics	Technical drawing of the ACE stove, model HD4012	28/11/2007	
12.	Google Maps	Print-screens of GPS coordinates Republic of Malawi, Lilongwe and excluded areas indicated in A.5. of the PoA-DD	Submitted in 05/2013 and 07/2013	ABH Associates/Whave Solutions (CDM consultant) submitted together with the Google Maps print-screens explanations how the GPS coordinates have been determined.
13.	Google Maps	GPS coordinates Republic of Zambia and excluded areas indicated in A.5. of the PoA-DD	Submitted in 05/2013 and 07/2013	ABH Associates/Whave Solutions (CDM consultant) submitted together with the Google Maps print-screens explanations how the GPS coordinates have been determined.
14.	Various (see right column)	-Management Plan for a Section of Luwawa to revitalize the productivity of the Viphya, prepared and submitted by TLC to Dpartment of Forestry under the Ministry of natural resources, energy and environment, dated 18/04/2011	Various (see left column)	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
		-Renewable biomass supply Summary, dated 08/03/2013 -Biomass supply procedure (Viphya Forest Operations – Chipper/Chunker biomass volume reduction), dated May 2013 –Agreement between the Department of Forestry (Government Republic of Malawi) and Total LandCare, dated 12/07/2011 granting TLC the right amongst others to plant, manage, harvest in Viphya Forestry Plantations; -Delivery Receipt template		
15.	Ministry of Mines, Natural Resources and Environmental Affairs	Forestry Act (1997), Malawi	16/05/1997	
16.	C-Quest Capital	Tentative implementation schedule for PoA	08/03/2013	
17.	C-Quest Capital /Total Land Care	Agreement (letter of exclusivity) between C-Quest and Total LandCare	07/03/2012	
18.	William J. Martin II, Roger I. Glass and others	A major environmental cause of death, in: SCIENCE, Volume 334	14/10/2011	
19.	African Clean Energy (Pty) Ltd.	Letter regarding technical specifications, thermal efficiency and lifetime of the HD4012 ACE stove	22/03/2013	The ACE stove is manufactured by the African Clean Energy Company (located in Lesotho). African Clean Energy Company is a joint

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
				cooperation between Royal Philips Electronics (Netherlands), South African Industrial Development Corporation and African Clean Energy (Pty) Ltd (Lesotho)
20.	HED Consulting	Interviewer Field Guide: Baseline Fuel assessment Study developed by HED Consulting	December 2011	
21.	C-Quest Capital ABH Associates/Whave Solutions	Emission reduction calculation excel spreadsheet for the 1 <sup>st</sup> CPA, version 02	02/05/2013	Emission reduction calculation
22.	C-Quest Capital ABH Associates/Whave Solutions	Sampling calculation excel spreadsheet, version 02	02/05/2013	
23.	C-Quest Capital	Self-declaration letter signed by the CME confirming that no public funding from Annex I parties to the United Nations Framework Convention on Climate Change (UNFCCC) are envisaged to be made available for the	08/03/2013	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
		proposed PoA “CDM Africa Sustainable Energy Programme” or any CPA under the proposed PoA. The declaration states further, that if public funding from Annex I parties is provided, the CME shall confirm (prior to inclusion of the CPA) that the funding is not a diversion of ODA.		
24.	Government of Malawi, Dept. of Forestry	Malawi’s National Forestry Program	2001	
25.	C-Quest Capital	Improved Cook Stoves Monitoring Training Manual	03/2013	
26.	U.S. Environmental Protection Agency (inter alia James Jetter, Kirk R. Smith, Bernine Khan)	Pollutant Emissions and Energy Efficiency under Controlled Conditions for Household Biomass Cookstoves and Implications for Metrics Useful in Setting International Test Standards (published in Environmental Science & Technology) including supporting information	27/08/2012	Indicating a thermal efficiency of 38.4% for the ACE HD4012
27.	C-Quest Capital TLC Green Ltd.	Self declaration letter issued and signed by the CME (C-Quest Capital) and CPA implementer regarding 1 <sup>st</sup> CPA including information about -promotion and distribution of ICS in Malawi (at which it is anticipated that the CPA takes place entirely in the Central Capital (Lilongwe)) to end-users (households, communities, small/medium enterprises) through the CPA implementer’s sales team, direct distribution, community events and commercial retailers on a commercial and a non-commercial basis. -TLC Green involvement in the supply of demonstrably renewable biomass -starting date of the 1 <sup>st</sup> CPA (01/09/2013) or the date of first distribution of	21/05/2013	

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
		ICS whichever is later -methods for collection of end-users' and stove related information through physical registration card, Information Communication Technology (ICT) or SMS -provisions by the CME and CPA implementer to ascertain the carbon right transfer from users to the CME. -CPA is not a part of any other registered PoA or CDM project or any other voluntary scheme (like GS, VCS, VER+) and does not involve users already involved in any other CPA or CDM project involving the distribution and/or installation of ICS or in any government or NGO programme that distributed ICS; -CME approval for 1 <sup>st</sup> CPA inclusion and for CPA implementer (Total Land Care Green Limited (TLC Green)) -confirmation by the CME that each stove itself will be uniquely identified with a serial number clearly starting with CQC-FS and that only new ICS will be installed under the PoA, hence guaranteeing that no ICS can be transferred from outside to any of the CPAs of this PoA and be part of the database. -adherence to all requirements related to sampling for a PoA in accordance with the approved standard and guidelines (EB74, Annex 6 and EB69, Annex 5) as outlined in section B.7.2. of the PoA-DD.  Besides, the declaration further confirms that -the PoA is a voluntary action -C-Quest Capital Malaysia Global Stoves Limited is a wholly (100%) owned subsidiary of C-Quest Capital LLC and will act as the CME of the		

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
		PoA		
28.	C-Quest Capital	Self declaration letter signed by CME (C-quest Capital) confirming that the PoA and 1 <sup>st</sup> CPA do not use ODA funds and that the majority of the current investment in the PoA and 1 <sup>st</sup> CPA is from 2 private investors who have filed investor letters indicating that they would not have invested in the PoA or any CPA in the absence of CDM.	08/03/2013	<b>CONFIDENTIAL</b>
29.	NA (confidentiality)	Letters from major investors (Submitted to DOE for review) regarding the programme "CDM Africa Sustainable Energy Programme"	No date	<b>CONFIDENTIAL</b>
30.	University of Malawi (P. Kambewa and L. Chiwaula)	Biomass energy use in Malawi	October 2010	Indicates that "up to 98% of the households use biomass in the form of firewood (91%) and charcoal (7%) for cooking".
31.	Doane and Seward	Applied Statistics in Business and Economics, chapters: Sampling distributions and estimation and Descriptive statistics	2011	
32.	FAO, Forestry Department	Global Forest Resources Assessment, Country reports, Malawi and Zambia 2010	2010	
33.	Human Ecology 32, A. Biran, J. Abbot and R. Mace	Families and firewood: A comparative analysis of the costs and benefits of children in firewood collection and use in two rural communities in Sub-Saharan Africa	2004	

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
34.	World Health Organisation	World Health Report	2002	
35.	C-Quest Capital	Short CV of key personnel from C-Quest Capital and Adam Harvey and Stuart Leckie (Consultants ABH Associates/Whave Solutions)	Submitted in 05/2013	
36.	HED Consulting	Data entry guidelines	January 2012	Guide for entering data from questionnaires into an Excel spreadsheet
37.	P. Kambewa, B. Mataya, K. Sichinga and T. Johnson	Charcoal: the reality – A study of charcoal consumption, trade and production in Malawi	2007	
38.	C-Quest Capital	CME manual (version 01) including template registration card and template database	20/05/2013	
39.	Bright Sibale Gracian Banda	A study on livelihoods, governance and illegality: Law enforcement, illegality and the forest dependent poor in Malawi	13/05/2004	
40.	Mulombwa, J. 1998 (FAO)	Woodfuel review and assessment in Zambia.  (Technical report. Series: Forestry Statistics and Data Collection AFDCA/WE/22. Food and Agriculture Organisation of the United Nations: Addis Ababa, Ethiopia. 55 pp) <a href="http://www.fao.org/DOCREP/004/X6802E/X6802E05.htm#4276">http://www.fao.org/DOCREP/004/X6802E/X6802E05.htm#4276</a> (Accessed on XXXX)	December 1998	

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
41.	IPCC	IPCC 1996 Guidelines indicating a CO <sub>2</sub> emission factor for the biomass fuel of 109.6 tCO <sub>2</sub> /TJ	1996	
42.	National Statistical Office of Malawi	Malawi Demographic and Health Survey	2010	Document mentions that the predominant fuel for cooking in urban areas is charcoal (52.8%) and in rural areas firewood (94.1%)
43.	Environmental Affairs Department under the Ministry of Natural Resources and Environmental Affairs, Malawi	National Environment Policy Malawi	June 2004	
44.	Gold Standard (Project ID GS613)	Integrated Biomass energy conservation project – Malawi <a href="https://gs2.apx.com/mymodule/ProjectDoc/EditProjectDoc.asp?id1=613">https://gs2.apx.com/mymodule/ProjectDoc/EditProjectDoc.asp?id1=613</a>	Accessed in 02/2013	
45.	Central Statistical Office, Zambia Ministry of Health, Zambia	Zambia Demographic and Health Survey 2007	March 2009	Document mentions amongst others that of households using firewood/charcoal almost all (99%) of them are using open fire/stove without a

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
				chimney or hood and indicates that the predominant fuel for cooking in urban areas is charcoal (53.1%) and in rural areas firewood (87.8%).
46.	C-Quest Capital and Ecological Technologies Limited (EcoTec)	Consulting Services Agreement	22/03/2013	
47.	Ministry of Natural Resources (Government of Malawi)	National forest policy of Malawi	01/1996	
48.	Environmental Affairs Department Ministry of Natural Resources and Environmental Affairs, Malawi	Report on Malawi's climate technology transfer and needs assessment	March 2003	<i>Confirms that the low efficiency 3-stone fire stove is the dominant firewood end use system for cooking in Malawi and the households' preference for low efficiency firewood</i>

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
				<i>and charcoal end-use technologies;</i>
49.	Ecological Technologies Limited (EcoTec) on behalf of C-Quest Capital	Documents related to the local stakeholder consultation meeting in Zambia: -Local stakeholder consultation report from the local stakeholder consultation carried out on 26/04/2013 (including inter alia description of the physical meeting, participation list, evaluation forms, stakeholder comments and the assessment of these comments, sample of individual invitation letter, list of invitees for stakeholder consultation meeting) -Power Point Presentation shown during the local stakeholder consultation on 26/04/2013 -Invitation letters (sent by Email (dated 19/04/2013) to specific stakeholders (like e.g. government officials, DNA, NGOs) -radio announcement on Radio 4 of the Zambia National Broadcasting Corporation evidenced by payment receipts (dated 22/04/2013) and national newspaper ("The Post") advertisement on 22/04/2013	Various (see left column)	
50.	C-Quest Capital	Environmental Management Plan for Malawian DNA for requesting LoA	Without date	
51.	HED Consulting Ltd.	Excel spreadsheets for the calculation of the adjustment factor of second (baseline) stoves submitted together with the baseline study (survey) reports	05/2013	
52.	TLC	Constitution of the registered trustees of Total Land Care Malawi	No date	
53.	Total Land Care Malawi and C-Quest Capital	Documents related to the local stakeholder consultation meeting in Malawi: -Agenda from the local stakeholder consultation carried out on 30/04/2013	Various (see left column)	

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
		<ul style="list-style-type: none"> <li>-participation list</li> <li>-evaluation forms, list of invitees for stakeholder consultation meeting), sample of invitation letter</li> <li>-Power Point Presentation shown during the local stakeholder consultation on 30/04/2013</li> <li>-Invitation letters (sent by Email (dated 10/04/2013) to specific stakeholders (like e.g. government officials, DNA, NGOs)</li> <li>-radio announcement (invoice dated 15/04/2013) and national newspapers ("The Nation" and "The Daily Times") advertisements on 18/04/2013 and 25/04/2013</li> </ul>		
54.	C-Quest Capital TLC Malawi TLC Zambia	Modalities of Communication	14/08/2013	
58.	Government of Malawi, Companies Act (No. 19 of 1984)	Certificate of Incorporation, N° 12906 of Total Land Care (TLC) Green Limited	07/05/2013	
59.	Ministry of Home Affairs, Zambia	Certificate of registration, registered trustees of Total Land Care Zambia, N° ORS/102/35/2252	03/05/2007	
60.	Environmental affairs department, Malawi	Clean development mechanism project approval procedure for Malawi	No date	
61.	C4 EcoSolutions	Improved Cooking stove programme (Malawi): Report for the calculation of the national non-renewable biomass fraction ( $f_{NRB}$ )	March 2012	NRB Malawi
62.	C4 EcoSolutions	Additional references and clarifications to the $f_{NRB}$ report, Malawi including	May 2012 and June 2012	<b>CONFIDENTIAL</b>

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
		explanations regarding the differences between default value (as per EB67, Annex 22) and value calculated by the 3 <sup>rd</sup> party (C4 EcoSolutions)		
63.	C4 EcoSolutions	NRB calculation excel spreadsheet Malawi	Submitted together with the fNRB report	<b>CONFIDENTIAL</b>
64.	National Statistical Office, Malawi	Integrated household survey 2010-2011 report	09/2012	
65.	Worldbank Republic of Malawi	Malawi poverty and vulnerability assessment investing in our future	06/2006	
66.	David Nangoma and Everhart Nangoma	Climate change and adaptation strategies: a case study of the Mulanje mountain forest reserve and its surroundings, Malawi	No date	
67.	C4 EcoSolutions	Additional references and clarifications to the f <sub>NRB</sub> report, Zambia	October 2012	<b>CONFIDENTIAL</b>
68.	C4 EcoSolutions	Improved Cooking Stove Programme (Zambia): Report for the calculation of the National Non-Renewable Biomass fraction (fNRB) using CDM methodology	October 2012	
69.	C4 EcoSolutions	NRB calculation excel spreadsheet Zambia	No date	<b>CONFIDENTIAL</b>
70.	Website Mongabay.com	<a href="http://rainforests.mongabay.com/deforestation/2000/Zambia.htm">http://rainforests.mongabay.com/deforestation/2000/Zambia.htm</a> mentioning deforestation figures in Zambia since 1990.	Accessed on 15/05/2013	
71.	National Statistical Office of Malawi	Malawi household census and energy info <a href="http://www.nso.malawi.net/index.php?option=com_content&amp;view=article&amp;id=107%3A2008-population-and-housing-census-results&amp;catid=8&amp;Itemid=6">http://www.nso.malawi.net/index.php?option=com_content&amp;view=article&amp;id=107%3A2008-population-and-housing-census-results&amp;catid=8&amp;Itemid=6</a> [Accessed on 15/03/2013]	2008	As per the information given in this document 87.6% of households use firewood and 7.9%

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
				use charcoal for cooking.
72.	National Statistical Office	Integrated household survey 2004-2005 report	10/2005	
73.	Government of Malawi	Malawi Biomass Energy Strategy	January 2009	
74.	Government of Zambia	The Environmental Management Act, 2011, Zambia	2011	Ms. Angela Kabuswe, Senior Environment officer (DNA, Zambia) confirmed in an Email on 21/05/2013 that the Environmental Management Act of 2011 is the most recent legislation on environment in Zambia. In the same Email it is confirmed the Environmental Management Act does not have a direct mention of ICS which may imply that there are no mandatory targets

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
				regarding the implementation of ICS.
75.	Ministry of Energy and water development, Republic of Zambia	National Energy Policy, Zambia	March 2008	Email from H. Zulu (Senior Energy Officer, Department of Energy) sent on 08/04/2013 confirms that the National Energy Policy (2008) is the most recent policy document and that the policy document is supported by the 6 <sup>th</sup> National Development Plan where there are no mandatory targets but pronouncements of what the sector may achieve over a certain time frame in promoting and rolling out of ICS.

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
76.	Zambia Environmental Management Agency (ZEMA)	Letter referring to environmental clearance	08/07/2013	ZEMA informs in the letter a detailed description of the project has to be submitted before an appropriate decision is made on whether to exempt from carrying out an EIA or not.
77.	Republic of Zambia	Forests Act N° 39	1973	An Email from D. Kasaro (National REDD+ Coordinator) on 21/05/2013 confirmed in an Email that there is a Forests Act No. 7 of 1999 which however is a dormant act and is not in use. Hence, the Forests Act No. 39 of 1973 is the one governing the Forestry Sector in Zambia. In the same Email it is confirmed

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
				that there are no mandatory targets or programmes for ICS dissemination in the Forests Act and Forest Policy (07/1998).
78.	Ministry of Tourism, environment and natural resources, Environmental policy development secretariat	National policy on Environment, Zambia	2007	Email from A. C. Katongo Kabuswe (Senior Environment Management Officer, Ministry of Lands, Natural Resources and Environmental Protection) sent on 22/04/2013 confirms that the National Policy on Environment (NPE) (2007) is the most recent policy document and is provided for the promotion of energy saving and renewable energy

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
				technologies. It is also provided for the promotion of alternative energy systems to fuel-wood for rural and urban communities. However, there is no direct mention of ICS which may imply that there are no mandatory targets regarding the implementation of improved cook stoves.
79.	Various (see right column)	2008 Population and Housing Census, National Statistical Office of Malawi  Zambia Demographic and Health Survey 2007, Central Statistical Office of Zambia	2008  2007	Supporting documentation (for both Zambia and Malawi) for the fact that charcoal is the primary fuel in urban areas and firewood the predominant fuel in rural areas

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
80.	Ministry of Forestry, Fisheries and environmental affairs	Environmental Impact Assessment Guidelines, Malawi <a href="http://www.sdn.org.mw/enviro/eia/foreword.html">http://www.sdn.org.mw/enviro/eia/foreword.html</a>	Accessed in 02/2013	
81.	Ministry of Environment and Natural Resources, Zambia	National Forestry Policy	07/1998	
82.	TLC Malawi and TLC Green Limited	Business Plan	12/2012	
83.	Ministry of Tourism, Environment and Natural Resources (Republic of Zambia)	National Programme on sustainable consumption and production for Zambia	2011	
84.	Ministry of finance and national planning (Republic of Zambia)	6 <sup>th</sup> National Development Plan 2011 to 2015 – Republic of Zambia	01/2011	
85.	Government of Republic of Malawi	National Energy Policy for Malawi	01/2003	
86.	United Nations	Demographic Yearbook 2011 <a href="http://unstats.un.org/unsd/demographic/products/dyb/dyb2011.htm">http://unstats.un.org/unsd/demographic/products/dyb/dyb2011.htm</a> [accessed on 20/05/2013]	2011	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
87.	C-Quest Capital ABH Associates/Whave Solutions	Final PoA-DD “CDM Africa Sustainable Energy Programme”, version 4 Final CPA-DD (specific case) “CDM Africa Sustainable Energy Programme in Lilongwe, Malawi CPA-001”, version 4	30/08/2013	
88.	Luhanga, J.	Malawi, The timber trade, South Africa Resource Watch	29/05/2009	
89.	HED Consulting Ltd.	Baseline urban charcoal consumption study (survey) report Zambia	21/05/2012 29/07/2013 (final)	
90.	FAO	Global Forest Resources Assessment 2010, Global Tables Malawi and Zambia <a href="http://www.fao.org/forestry/fra/fra2010/en/">http://www.fao.org/forestry/fra/fra2010/en/</a> [accessed on XXXX]	2010	
91.	HED Consulting Ltd.	Explanation demonstrating that a less frequent use than once per week of the baseline stove is statistically negligible (explanation/justification provided for all 4 baseline study reports)	08/2012 (Zambia rural) 05/2013 (all other baseline study reports)	
92.	HED Consulting Ltd.	Baseline urban charcoal consumption study (survey) report Malawi	21/05/2013 29/07/2013 (final)	
93.	HED Consulting Ltd.	Baseline rural firewood consumption study (survey) report Zambia	21/05/2012 29/07/2013 (final)	
94.	HED Consulting Ltd.	Baseline rural firewood consumption study (survey) report Malawi	21/05/2012 29/07/2013 (final)	
95.	C-Quest Capital ABH Associates/Whave	Final emission reduction calculation excel spreadsheet for the 1 <sup>st</sup> CPA, version 4 including implementation plan for the 1 <sup>st</sup> CPA	31/07/2013	Emission reduction calculation

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
	Solutions			
96.	C-Quest Capital  ABH Associates/Whave Solutions	Final sampling calculation excel spreadsheet, version 4	31/07/2013	
97.	C-Quest Capital	Self-declaration letter which confirms that the value for non-project wood fuel consumption of 0.2 t/year is based on expert opinion of the project participants' staff.	29/07/2013	
98.	C-Quest Capital TLC Malawi Renewable Energy Solutions, Inc.	Indicative Term Sheet, TLC Green Joint Venture agreement	20/05/2013	CONFIDENTIAL
99.	C-Quest Capital	Written confirmation from the CME entity that submits to it the MoC statement that all corporate and personal details, including specimen signatures are valid and accurate	29/07/2013	
100.	IPCC guidelines 1996	Conversion factor from charcoal to firewood, <a href="http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf">http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf</a> , [accessed on 20/05/2013]	1996	
101.	Environmental Affairs Department (DNA Malawi)	Letter of approval Republic of Malawi authorizing C-Quest Capital Malaysia Global Stoves Limited and Total Land Care (TLC) Malawi as project participants and corresponding Email communication between C-Quest Capital and the DNA Malawi	07/02/2014	
102.	Ministry of Lands, Natural Resources	Letter of approval Republic of Zambia authorizing Total Land Care (TLC) Zambia as project participant and corresponding Email communication	18/03/2014	

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
	and Environmental Protection (DNA Zambia)	between C-Quest Capital and the DNA Zambia		
103.	Swedish Energy Agency (DNA Sweden)	Letter of Approval, Sweden authorizing the participation of C-Quest Capital Malaysia Global Stoves Limited as a PP in the PoA and corresponding Email communication between C-Quest Capital and the DNA Sweden	24/03/2014	
104.	Signed by relevant participants	MoC	31/03/2014	



South Asia

## **Annex 3**

### **Appointment Certificates**



South Asia

# CERTIFICATE OF APPOINTMENT

Ms. Wagner, Karin fulfills the requirements of the Certification Body 'Environment and Energy' of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		21.11.12	21.11.12	21.11.12	21.11.12	1.2

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	21.11.12					
Further countries						
Financial Expertise						
Date	21.11.12					

Qualification in technical areas	
Technical Area	Date
1.2_Energy generation from renewable energy source	21.11.12

This appointment is valid until 31.05.2014 and is bound by internal requirements of the Certification Body 'Environment and Energy' of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0048/003.

Date	Signature
01.03.2013	
01.03.2014	



# CERTIFICATE OF APPOINTMENT

Mr. Beducci, Roberto fulfills the requirements of the Certification Body 'Environment and Energy' of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date						1.1, 4.10

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date		21.11.12				
Further countries						
Financial Expertise						
Date						

Qualification in technical areas	
Technical Area	Date
1.1_Thermal energy generation...	21.11.12
4.10_Thermal energy generation...	21.11.12

This appointment is valid until 31.05.2014 and is bound by internal requirements of the Certification Body 'Environment and Energy' of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0008/003.

Date	Signature
01.03.2013	
01.03.2014	



South Asia

# CERTIFICATE OF APPOINTMENT

Mr. Mitterwallner, Robert fulfills the requirements of the Certification Body 'Environment and Energy' of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		21.11.12	21.11.12	21.11.12	21.11.12	1.1, 4.10, 1.2, 4.1, 4.3, 13.1

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	21.11.12		21.11.12			
Further countries						
Financial Expertise						
Date						

Qualification in technical areas	
Technical Area	Date
1.1_4.10_Thermal energy generation	01.03.13
1.2_Energy generation from renewable energy source	21.11.12
4.1_Cement sector	21.11.12
4.3_Iron and steel sector	21.11.12
13.1_Waste handling and disposal	21.11.12

This appointment is valid until 31.05.2014 and is bound by internal requirements of the Certification Body 'Environment and Energy' of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0030/004.

Date	Signature
01.03.2013	
31.07.2013	
01.03.2014	