



# VALIDATION REPORT

for the CDM Programme of Activities

Man and Man Enterprise Improved Cooking Stoves  
Programme in Togo

in

Togo

Report No. 01 997 91050 73978

Version No. 02.1, 2014-06-04

**TÜV Rheinland (China) Ltd.**

**I. Programme of Activities (PoA) Description:**

|   |   |   |                                     |
|---|---|---|-------------------------------------|
| PoA title:  | Man and Man Enterprise Improved Cooking Stoves Programme in Togo          |   | Report No.: 01 997 91050 73978      |
| Real-case CPA title:  | Man and Man Enterprise Improved Cooking Stoves Programme in Togo - CPA001 |   |                                     |
| Host Country:   | Togo  |   | Current version No.: 02.1           |
| Methodology:  | AMS-II.G.<br>Version 05   | <input type="checkbox"/> Large Scale            | Date of current version: 2014-06-04 |
|   |   | <input checked="" type="checkbox"/> Small Scale | Date of first issue: 2013-05-22     |
| Annual average emission reductions of the real-case CPA (estimate): |   |   | 48,001 tCO <sub>2</sub> e/yr        |
| GHG reducing measure/technology:                                    | Efficiency improvements in thermal applications of non-renewable biomass  |   |                                     |

| Party  | Project Participants   | Party considered a project participant | Contract party                      |
|--|--|--|-------------------------------------|
| Togo<br>(Host Country)                               | Man and Man Enterprise<br>(also as the coordinating and managing entity) | No                                     | <input checked="" type="checkbox"/> |
| United Kingdom of Great Britain and Northern Ireland | Eneco Energy Trade B.V.  | No                                     | <input type="checkbox"/>            |

|                                   |                             |
|-----------------------------------|-----------------------------|
| <b>CPA Implementer</b>            | Man and Man Enterprise Togo |
| <b>To be project participants</b> | No                          |

**II. Validation Team:**

| Validation Team             |                                 |   | Role        |                    |              |                          |                  |                     |                 |                    |              |            |
|-----------------------------|---------------------------------|---|-------------|--------------------|--------------|--------------------------|------------------|---------------------|-----------------|--------------------|--------------|------------|
| Full name                   | Affiliation<br>TÜV<br>Rheinland | Appointed for Sectoral<br>Scopes (Technical<br>Areas) | Team leader | Acting Team Leader | Local Expert | Team Member<br>(Auditor) | Technical Expert | Acting Tech. Expert | Trainee Auditor | Technical Reviewer | Expert to TR | Trainee TR |
| Mr. Feng Hu* (ex TL)        | China                           | 1.2, 3.1, 13.1  | X           |                    |              |                          |                  |                     |                 |                    |              |            |
| Ms. Jia Liu                 | China                           | 1.2   | X           |                    |              |                          |                  |                     |                 |                    |              |            |
| Mr. Harold Hai              | China                           | 1.2, 3.1, 6.1, 13.1                                   |             |                    |              | X                        | X                |                     |                 |                    |              |            |
| Mr. Abdoulaye Robil Nassoma | n/a                             | n/a   |             |                    | X            |                          |                  |                     |                 |                    |              |            |
| Dr. Lixin Li                | China                           | 1.1, 1.2, 2.1, 2.2, 3.1, 4.5                          |             |                    |              |                          |                  |                     |                 | X                  |              |            |

\* Until January 2014

| Validation Phases  | Validation Status   |
|--|---|
| <input checked="" type="checkbox"/> Desk Review                      | <input checked="" type="checkbox"/> Corrective Actions / Clarifications Requested |
| <input checked="" type="checkbox"/> Follow up interviews             | <input checked="" type="checkbox"/> Full Approval and Submission for Registration |
| <input checked="" type="checkbox"/> Resolution of outstanding issues | <input type="checkbox"/> Rejected   |

**III. Validation Report:**

| Final approval                      | Released           | Distribution   |
|-------------------------------------|--------------------|--|
| <input checked="" type="checkbox"/> | By: Mr. Henri Phan | <input type="checkbox"/> No distribution without permission from the Client or responsible organizational unit |
| Date: 2014-06-05                    |                    | <input checked="" type="checkbox"/> Unrestricted distribution  |

## Executive Summary – Validation Opinion

The validation team assigned by the DOE (TÜV Rheinland (China) Ltd.) has performed the validation of “Man and Man Enterprise Improved Cooking Stoves Programme in Togo” in Togo, on the basis of UNFCCC criteria for Clean Development Mechanism (CDM) Programme of Activities (PoA) according to Article 12 of the Kyoto Protocol and the subsequent decisions by the COP/MOP and CDM Executive Board with regard to the simplified modalities and procedures for small-scale CDM project activities, the procedures for registration of a programme of activities and the application of approved methodologies. The validation findings are summarized in the validation report and the validation protocol.

The review of the Programme design documentations (i.e. PoA-DD and a real-case CPA-DD) and the subsequent follow-up interviews have provided the DOE with sufficient evidence to determine the fulfilment of stated criteria.

The validation was executed in the following steps:

- Desk review of GSP documents:
  - PoA-DD / Version 1.0, 11<sup>th</sup> March 2013;
  - 1<sup>st</sup> real-case CPA-DD / Version 1.0, 11<sup>th</sup> March 2013;
- Public stakeholder comment process (13<sup>th</sup> March 2013 – 11<sup>th</sup> April 2013)
- On-site visit with stakeholder interviews (30<sup>th</sup> April and 1<sup>st</sup> May 2013)
- Issue of checklist with corrective action requests (CARs) and clarification requests (CLs) and the draft validation report & protocol
- Desk review of revised project documents:
  - PoA-DD / Version 1.9, 21<sup>st</sup> May 2014;
  - 1<sup>st</sup> real-case CPA-DD / Version 1.9, 21<sup>st</sup> May 2014;
- Review of proposed corrections and clarifications and resolving them
- Issue of the final validation report & protocol

According to the PoA-DD, the programme is a bilateral PoA. The host country of the PoA is Togo. Man and Man Enterprise is the project participant from the host country and also the coordinating / managing entity (CME) of the PoA. The LoA from Togo has been received for confirming the voluntary participation and the coordination of the PoA by Man and Man Enterprise; and also the PoA assisting to achieve the sustainable development of Togo. The Annex I country of the PoA is the United Kingdom of Great Britain and Northern Ireland (UK). Eneco Energy Trade B.V. is the project participant from the Annex I country. The LoA from the UK has also been received for confirming the voluntary participation of Eneco Energy Trade B.V.

The validation team did not reveal any information that indicates that the PoA can be seen as a diversion of ODA funding towards the host country.

The CDM Component Project Activities (CPAs) under the PoA apply AMS-II.G. / Version 05 – “Energy efficiency measures in thermal applications of non-renewable biomass” and the “Guidelines on the demonstration of additionality of small-scale project activities” (Version 09).

It is demonstrated that the PoA is not a baseline scenario. In the absence of the PoA, non renewable biomass (e.g. firewood and charcoal) by using traditional cookstoves will dominantly

continue to supply thermal energy for the users. The PoA helps to stimulate the dissemination of improved cook stoves via lowering the price of ICSs and better marketing and promotion. Hence, GHG emission reductions attributable to a CDM component programme activity (CPA) under the PoA are hence expected to be additional to any that would occur in the absence of the CPA provided that the PoA meets the requirements for demonstrating additionality established in the PoA-DD.

Monitoring plan and procedures have been presented in the PoA-DD, which is in compliance with requirements of the applied monitoring methodology AMS-II.G. / Version 05. As per on-site interview with the CME /i/, the monitoring of each CPA will be in charge and responsible by the CME. The CDM monitoring training to relevant monitoring personnel will be provided before each CPA operation. For the first real-case CPA, the monitoring manual and other materials for monitoring (e.g. Water Boiling Test) are available for check.

The validation protocol describes a total of 11 findings which include:

4 Corrective Action Requests (CARs);

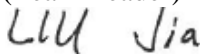
7 Clarification Requests (CLs);

0 Forward Action Requests (FARs);

The findings in CARs/CLs have all been closed.

In summary, it is the validation team's opinion that the PoA, "Man and Man Enterprise Improved Cooking Stoves Programme in Togo", as described in the PoA-DD, the generic CPA-DD and the real-case CPA-DD, has fully met all the relevant UNFCCC requirements for a PoA under the CDM including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board, and relevant host country criteria. Thus the validation team is glad to recommend the proposed PoA to be registered as a small-scale CDM Programme of Activities with the UNFCCC.

Ms. Jia Liu  
(Team Leader)



TÜV Rheinland Hong Kong Ltd.  
Hong Kong, 2014-06-04

Mr. Henri Phan  
(DOE Manager)



TÜV Rheinland (China) Ltd.  
Beijing, 2014-06-05

## Abbreviations

|                   |   |
|-------------------|---|
| AMS               | Approved Methodology Small Scale                                |
| BE                | Baseline Emissions  |
| CAR               | Corrective Action Request                                       |
| CDM               | Clean Development Mechanism                                     |
| CDM EB            | CDM Executive Board   |
| CPA               | CDM Component Project Activity                                  |
| CDM SSC-CPA-DD    | Small-Scale CDM Component Project Activity Design Document Form |
| CDM SSC-PoA-DD    | Small-Scale CDM Programme of Activities Design Document Form    |
| CER               | Certified Emission Reduction                                    |
| CL                | Clarification Request   |
| CME               | Coordinating / Managing Entity                                  |
| CO <sub>2</sub>   | Carbon Dioxide  |
| CO <sub>2</sub> e | Carbon Dioxide Equivalent                                       |
| CRISTO            | Research Centre of Social Engineering of Lomé                   |
| DOE               | Designated Operational Entity                                   |
| DNA               | Designated National Authority                                   |
| DR                | Document Review   |
| EB                | Executive Board   |
| EIA               | Environmental Impact Assessment                                 |
| ER                | Emission Reductions   |
| ERPA              | Emission Reduction Purchase Agreement                           |
| FAR               | Forward Action Request  |
| GHG               | Greenhouse Gas  |
| GSP               | Global Stakeholder Process                                      |
| GWh               | Giga Watt Hours   |
| I                 | Interview   |
| ICS               | Improved Cook Stove   |
| IE                | Implementing Entity   |
| IPCC              | Intergovernmental Panel on Climate Change                       |
| kW                | Kilo Watt   |
| kWh               | Kilo Watt Hours   |
| L <sub>y</sub>    | Leakage   |
| LDCs              | Least Developed Countries                                       |
| LES/UL            | Laboratory of Solar Energy, University of Lomé                  |
| LoA               | Letter of Approval  |
| MoV               | Means of Verification   |
| MW                | Mega Watt   |
| MWh               | Mega Watt Hours   |
| NGO               | Non Government Organisation                                     |
| NO <sub>x</sub>   | Nitrogen Oxides   |
| ODA               | Official Development Assistance                                 |
| OSV               | On Site Visit   |
| PE                | Project Emissions   |
| PoA               | Programme of Activities   |
| PoA-DD            | Programme of activities design document                         |
| PP                | Project Participant   |
| SO <sub>2</sub>   | Sulphur Dioxide   |
| SD                | Sustainable Development   |

|        |   |
|--------|---|
| T      | Tonne   |
| TRC    | TÜV Rheinland (China) Ltd.                            |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VVS    | Validation and Verification Standard                  |

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Appendix A: Validation Protocol

Appendix B: Certificates of Competence

## 1 INTRODUCTION

Man and Man Enterprise has commissioned the TÜV Rheinland (China) Ltd. (DOE) to perform a validation of the proposed CDM Programme of Activities (PoA) "Man and Man Enterprise Improved Cooking Stoves Programme in Togo" (hereafter called "the PoA"). This report summarises the findings of the validation of the PoA identified in the PoA Design Document (PoA-DD), the CDM Component Project Activity Design Document (CPA-DD) with generic information relevant to all Component Project Activities (CPAs) to be included in the PoA, and the associated real-case CPA-DD. The validation was performed on the basis of UNFCCC criteria for the PoAs under the CDM, as well as the criteria given to provide for consistent programme operations, monitoring and reporting. The term "UNFCCC criteria" refers to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, the simplified modalities and procedures for small-scale CDM project /programme activities, the procedures for registration of a programme of activities and the subsequent decisions by the CDM Executive Board.

### 1.1 Objective

The purpose of a validation is to have an independent third party assess the PoA-DD and the real-case CPA-DD. In particular, the eligibility criteria for inclusion and demonstration of additionality of PoA and associated CPAs, the programme's baseline determination, monitoring plan, and the programme's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the programme design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM PoAs and is seen as necessary to provide assurance to stakeholders of the quality of the programme and its intended generation of certified emission reductions (CERs).

### 1.2 Scope

The validation scope is defined as an independent and objective review of the PoA-DD and the real-case CPA-DD. The PoA-DD and the real-case CPA-DD are reviewed against the relevant criteria (see above) and decisions by the CDM Executive Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation and Verification Standard employed (latest version) a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

While carrying out the validation, TRC determines if the project activity complies with the requirements of Para 37 of the CDM M&P and also assesses the claims and assumptions made in the PoA-DD and the real-case CPA-DD without limitation on the information provided by the project participants.

The scope of the validation is:



- To apply TRC's own quality management system integrated with the VVS standard along with the recent decisions and guidance provided by the UNFCCC board to determine if the project activity meets all applicable CDM requirements, including those specified in the relevant methodologies, tools and guidelines;
- Assess the accuracy, conservativeness, relevance, completeness, consistency and transparency of the information provided by the project participants;
- Determine whether information provided by the project participants are reliable and credible;
- Present information in the form of validation report in a factual, neutral, coherent manner and document all assumptions, provide references to the background material and identify changes made to the documentation;
- Base the findings and conclusions on objective evidence and conduct all validation in accordance with CDM rules and procedures;
- Apply consistent validation criteria in providing expert judgments to the requirements of applicable approved methodologies, tools and also cross check the same with projects of similar characteristics, technology, time period and region; and
- Safeguard the confidentiality of all information's obtained or created during validation.
- Where sampling is involved, the standard for sampling and surveys are applied.

## 2 METHODOLOGY

The validation consists of the following four phases:

- I A desk review of the project design documents
  - Publication of the PoA-DD and the real-case CPA-DD in UNFCCC for global stakeholder consultation;
  - A review of data and information;
  - Cross checking between information provided in the PoA-DD and the real-case CPA-DD with all necessary means without limitations to the information provided by the project proponent;
- II On-site visit and follow-up interviews with project stakeholders
  - Interviews with relevant stakeholders in host country with personnel's having knowledge with the project development via telephone, email or direct on-site visits;
  - Cross checking between information provided by interviewed personnel with all necessary means without limitations to the information provided by the project proponent;
- III Reference to available information relating to projects or technologies of similar projects under validation and review based on the approved methodology being applied with consideration of the appropriateness of formulae and accuracy of calculations.
- IV The resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

### 2.1 Desk Review of the Programme Design Documentation

Table 1: This table outlines the documentation reviewed during the validation

| General Documents |       |  |
|-------------------|-------|--|
| /1/               | /1.1/ | PoA-DD, Version 1.0 ( <i>for GSP</i> ), 11 <sup>th</sup> March 2013  |
|                   | /1.2/ | PoA-DD, Version 1.9, 21 <sup>st</sup> May 2014   |
| /2/               | /2.1/ | Real-case CPA-DD for CPA001, Version 01 ( <i>for GSP</i> ), 11 <sup>th</sup> March 2013  |
|                   | /2.2/ | Real-case CPA-DD for CPA001, Version 1.9, 21 <sup>st</sup> May 2014  |
| /3/               | /3.1/ | UNFCCC, Small-Scale CDM Programme of Activities Design Document form (CDM-SSC-PoA-DD), Version 02.0, EB 66, 13 <sup>th</sup> March 2012                          |
|                   | /3.2/ | UNFCCC, Guidelines for completing the programme design document form for small-scale CDM programmes of activities, Version 02.0, EB 67 Annex 30                  |
| /4/               | /4.1/ | UNFCCC, Small-Scale CDM Component Project Activity Design Document form (CDM-SSC-CPA-DD), Version 02.0, EB 66, 13 <sup>th</sup> March 2012                       |
|                   | /4.2/ | UNFCCC, Guidelines for completing the component project activity design document form for small-scale component project activities, Version 01.0, EB 66 Annex 17 |

|   |        |   |
|---|--------|---|
| /5/   | /5.1/  | UNFCCC, Clean Development Mechanism Validation and Verification Standard (Version 06.0), 11 <sup>th</sup> April 2014  |
|   | /5.2/  | UNFCCC, Clean Development Mechanism Project Standard (Version 06.0), 11 <sup>th</sup> April 2014  |
|   | /5.3/  | UNFCCC, Clean Development Mechanism Project Cycle Procedure (Version 06.0), 11 <sup>th</sup> April 2014   |
| /6/   | /6.1/  | UNFCCC, AMS-II.G. "Energy Efficiency Measures in Thermal Applications of Non-renewable Biomass" (Version 05), EB 70 Annex 30  |
|   | /6.2/  | Clarification about the threshold of thermal energy savings in AMS-II.G, submitted on 21 <sup>st</sup> September 2008 and agreed by the SSC WG on 4 <sup>th</sup> November 2008                     |
| /7/   |        | UNFCCC, "General guidelines for SSC CDM methodologies", Version 20.0, EB 76 Annex 11  |
| /8/   | /8.1/  | UNFCCC, Guidelines on the demonstration of additionality of small-scale project activities, Version 09, EB 68 Annex 27  |
|   | /8.2/  | UNFCCC, Guidelines for objective demonstration and assessment of barriers, Version 01, EB 50 Annex 13   |
|   | /8.3/  | UNFCCC, Guidelines on the demonstration and assessment of prior consideration of the CDM, Version 04.0, EB 62 Annex 13  |
| /9/   | /9.1/  | UNFCCC, General guidance on leakage in biomass project activities, Version 03, EB 47 Annex 28   |
|   | /9.2/  | UNFCCC, Tool to calculate baseline, project and/or leakage emissions from electricity consumption, Version 01, EB 39 Annex 7  |
| /10/  | /10.1/ | UNFCCC, Standard " <i>Sampling and surveys for CDM project activities and programme of activities</i> ", Version 04.1, 28 <sup>th</sup> November 2013, EB 74 Annex 6                                |
|   | /10.2/ | UNFCCC, Standard " <i>Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities</i> ", Version 03.0, EB 74 Annex 05 |
|   | /10.3/ | UNFCCC, Guideline "sampling and surveys for CDM project activities and programme of activities", Version 03.0, EB 75 Annex 08   |
| /11/  |        | UNFCCC, Glossary CDM Terms, Version 07.0, EB 70 Annex 7   |
| /12/  |        | UNFCCC, Modalities of Communication Form (MoC), Version 02.1, 16 <sup>th</sup> March 2012   |
| /13/  |        | UNFCCC, Guidelines on assessment of de-bundling for SSC project activities, Version 03.0, EB 54 Annex 13  |
| <b>Supporting Documents for PoA-DD and CPA-DD</b> |        |   |
| /14/  |        | MoC of the PoA, signed on 26 <sup>th</sup> November 2013  |
| /15/  | /15.1/ | Certificate of Registration of Man and Man Enterprise (i.e. CME for the PoA) (Registration No. BN-1,698D), 8 <sup>th</sup> February 2007  |
|   | /15.2/ | Business establishment card of Man and Man Enterprise Togo, 20 <sup>th</sup> March 2013   |

|      |  |  |
|------|--|--|
| /16/ | CME's Organizational Structure diagram   |  |
| /17/ | Emission Reductions (ER) calculation spreadsheet   |  |
| /18/ | /18.1/   | Framework Law on the Environment in Togo (Law No.: 2008-005), 30 <sup>th</sup> May 2008  |
|      | /18.2/   | Decree No. 2006-058/PR on the conditions and procedures for carrying out Environmental Impacts Analysis and defining the categories of activities for which an EIA is required, 5 <sup>th</sup> July 2006                            |
| /19/ | /19.1/   | Man and Man Enterprise, Invitation letter on the stakedholder consultation meeting for the proposed PoA on 6 <sup>th</sup> February 2013, posted on Togo Presse on 1 <sup>st</sup> February 2013                                     |
|      | /19.2/   | Attendance list of the stakeholder consultation meeting (30 people), 6 <sup>th</sup> February 2013   |
|      | /19.3/   | PowerPoint Presentation during the stakedholder consultation meeting   |
| /20/ | Information of the geographical coordinates of Togo on the website of Central Intelligence Agency (CIA) of the U.S.<br><a href="https://www.cia.gov/library/publications/the-world-factbook/geos/to.html">https://www.cia.gov/library/publications/the-world-factbook/geos/to.html</a>             |  |
| /21/ | Emission Reduction Purchase Agreement (ERPA) signed between Man and Man Enterprise and Eneco Energy Trade B.V., 24 <sup>th</sup> December 2012   |  |
| /22/ | Ministry of Environment and Forestry Resources of Togo, Letter of non-objection (Ref. No. 0081/DE/AND), 30 <sup>th</sup> January 2013  |  |
| /23/ | /23.1/   | Laboratory of Solar Energy, University of Lomé (LES/UL), Water boiling test (WBT) results of the ICS adopted for the 1 <sup>st</sup> CPA, 5 <sup>th</sup> April 2013   |
|      | /23.2/   | LES/UL, Spreadsheet for the WBT calculation  |
|      | /23.3/   | WBT result standard deviation calculation spreadsheet  |
| /24/ | Professor Kossi Napo from LES/UL, Confirmation letter about the cookstoves adopted in baseline scenario in Togo, 27 <sup>th</sup> February 2013  |  |
| /25/ | Sale Purchase Agreement (Template) between the household users and Man and Man Enterprise  |  |
| /26/ | CDM Monitoring Manual  |  |
| /27/ | CDM Monitoring Training Plan   |  |
| /28/ | /28.1/   | Ministry of Energy of Togo, Energy Information System of Togo (SIE-Togo) 2007 Report,<br><a href="http://www.sie-togo.tg/beta/static.php?op=conso.html&amp;nps=0">http://www.sie-togo.tg/beta/static.php?op=conso.html&amp;nps=0</a> |
|      | /28.2/   | Ministry of Energy of Togo, Energy Information System of Togo (SIE-Togo) 2009 Report   |
| /29/ | Ministry of Economic Development of Togo, Questionnaires on basic indicators of well-being, June 2007<br><a href="http://mirror.undp.org/togo/Projets/download/PASNAM/Rapport%20QUIBB%202006%20pnud.pdf">http://mirror.undp.org/togo/Projets/download/PASNAM/Rapport%20QUIBB%202006%20pnud.pdf</a> |  |

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|------|---|--|
| /30/ | FAO. (2002). Impact de la carbonisation a Djalouma, un village forestier du plateau Akposso au Togo. Récupéré sur <a href="http://www.fao.org/docrep/ARTICLE/WFC/XII/1020-B1.HTM">http://www.fao.org/docrep/ARTICLE/WFC/XII/1020-B1.HTM</a>   |  |
| /31/ | FAO, State of the World's Forest, 2011  |  |
| /32/ | Renewables, D. <i>Country Energy Information: Togo</i> , retrieved from: <a href="http://www.energyrecipes.org/reports/genericData/Africa/061129%20RECIPES%20country%20info%20Togo.pdf">http://www.energyrecipes.org/reports/genericData/Africa/061129%20RECIPES%20country%20info%20Togo.pdf</a> , September 2006   |  |
| /33/ | République-Togolaise, Le charbon de bois tue les forêts à petit feu. Consulté le February 28, 2013, retrieved from: <a href="http://www.republicoftogo.com/Toutes-lesrubriques/Societe/Le-charbon-de-bois-tue-les-forets-a-petit-feu">http://www.republicoftogo.com/Toutes-lesrubriques/Societe/Le-charbon-de-bois-tue-les-forets-a-petit-feu</a> , 13 <sup>th</sup> September 2012 |  |
| /34/ | World Health Organisation (WHO), Fuel for Life: Household Energy and Health, 2006   |  |
| /35/ | Berkeley Air Monitoring Group, Water Boiling Test (WBT) v 3.0, <a href="http://berkeleyair.com/publications">http://berkeleyair.com/publications</a>  |  |
| /36/ | Sample size calculation spreadsheet   |  |
| /37/ | /37.1/  | Letter of Approval (LoA) from the DNA of Togo (Ref. No.: 0738/DE/AND), 3 <sup>rd</sup> September 2013  |
|      | /37.2/  | Email confirmation from the DNA of Togo, 4 <sup>th</sup> September 2013  |
| /38/ | /38.1/  | LoA from the DNA of the UK (Ref. No.: EA/Eneco/01/2013), 26 <sup>th</sup> November 2013  |
|      | /38.2/  | Email from the DNA of the UK, 26 <sup>th</sup> November 2013   |
| /39/ | UNFCCC, Default values of fraction of non-renewable biomass, <a href="http://cdm.unfccc.int/DNA/fNRB/index.html">http://cdm.unfccc.int/DNA/fNRB/index.html</a>  |  |
| /40/ | ICS Replacement Monitoring Sheet (Template)   |  |
| /41/ | <i>Documents of Project 5482: Efficient Wood Fuel Stove-Cooking-Sets, Lesotho</i>   |  |
|      | /41.1/  | Registered PDD, Version 3, dated 25/08/2012  |
|      | /41.2/  | Monitoring Report of the 1 <sup>st</sup> periodic verification, Version 1 ( <i>GSP version</i> ), dated 07/02/2013, <i>awaiting issuance request</i> |
| /42/ | Research Centre of Social Engineering of Lomé (CRISTO), Investigation of domestic energy consumption in Togo, 2007  |  |
| /43/ | Guidelines for Performance Tests of Energy Saving Devices and Kitchen Performance Tests by Climate Care<br><a href="http://www.climatecare.org/media/documents/pdf/ClimateCare_Guidelines_for_Performance_Tests_and_KPTsx.pdf">http://www.climatecare.org/media/documents/pdf/ClimateCare_Guidelines_for_Performance_Tests_and_KPTsx.pdf</a>  |  |
| /44/ | Legally binding agreement between the CME (i.e. Man and Man Enterprise) and the CPA implementer of the 1 <sup>st</sup> CPA (i.e. Man and Man Enterprise Togo), 3 <sup>rd</sup> July 2013  |  |
| /45/ | Man and Man Enterprise Limited, 1 <sup>st</sup> Order of ICS purchase (Ref. No.: 050613-010 MM), 3 <sup>rd</sup> September 2013   |  |
| /46/ | Radio RFI report about charcoal collection in Togo:<br><a href="http://video-streaming.orange.fr/autres/togo-pas-d-arbres-pas-de-charbon_14497424.html">http://video-streaming.orange.fr/autres/togo-pas-d-arbres-pas-de-charbon_14497424.html</a>  |  |

|      |   |
|------|---|
| /47/ | Global Bioenergy Partnership (GBEP), Regional Workshop Biomasse energy in Togo 2012 presentation, 13-14 November 2012,<br><a href="http://www.globalbioenergy.org/fileadmin/user_upload/gbep/docs/2012_events/WGCB_Activity_1_Rome_13-14_November_2012/2.13_-_TOGO.pdf">http://www.globalbioenergy.org/fileadmin/user_upload/gbep/docs/2012_events/WGCB_Activity_1_Rome_13-14_November_2012/2.13_-_TOGO.pdf</a> |
| /48/ | Togo's administration division<br><a href="http://agt1315.wordpress.com/2013/09/29/le-togo-05-regions-35-prefectures-01-sous-prefectures-387-cantons/">http://agt1315.wordpress.com/2013/09/29/le-togo-05-regions-35-prefectures-01-sous-prefectures-387-cantons/</a>   |

## 2.2 Follow-up Interviews with Programme Stakeholders

TÜV Rheinland validation team carried out an on-site visit dated (30/04/2013 – 01/05/2013) and performed interviews with the project representatives and stakeholders. The site visit was conducted to validate the accuracy and completeness of the project description as specified under webhosted PDD.

During the site visit, the validation team reviewed the available project activity designs, feasibility studies, documentation check and comparison analysis with equivalent projects as appropriate.

Prior to the interview salient points to be discussed were planned. Date of interview, interviewee and points discussed are given in the following table.

|     | Date       | Name and Title  | Organization   | Topic   |
|-----|------------|---|--|---|
| /i/ | 2013-04-30 | Mr. Traore Abdel Karim<br>(as representative of the CME as well as the IE of the 1 <sup>st</sup> CPA) | Man and Man Enterprise<br>(i.e. CME of the PoA)<br>Man and Man Enterprise Togo<br>(i.e. IE of the 1 <sup>st</sup> CPA) | <u>PoA in general:</u> <ul style="list-style-type: none"> <li>➤ Programme design</li> <li>➤ PoA related legal issues</li> <li>➤ CDM development history</li> <li>➤ Technical equipments</li> <li>➤ Eligibility Criteria for inclusion of CPA</li> <li>➤ Sustainable development issues</li> <li>➤ Baseline determination</li> <li>➤ Additionality at PoA level and CPA level</li> <li>➤ Crediting period of PoA &amp; CPA</li> <li>➤ Programme Monitoring plan and procedures</li> <li>➤ Training history</li> <li>➤ Operation and Management system &amp; structure</li> <li>➤ Environmental impacts</li> <li>➤ Stakeholder process</li> <li>➤ Approval by the host</li> </ul> |

|        |            |                                       |  |   |
|--------|------------|---------------------------------------|--|---|
|        |            |                                       |  | country<br><br><u>For the 1<sup>st</sup> real-case CPA:</u><br>➤ CPA design<br>➤ Legal issues and requirement from host country<br>➤ CPA inclusion to the PoA<br>➤ Starting date of CPA<br>➤ Baseline determination<br>➤ Operation and monitoring arrangement<br>➤ Crediting period selection<br>➤ Additionality of CPA<br>➤ Environmental impacts<br>➤ Stakeholder process |
| /ii/   |            | Mr. Christophe Roche<br>(CDM Analyst) | ecosur afrique   | <i>CDM consultant</i>   |
| /iii/  |            | Mr. Balema Simtako                    | Office de Developpement et D'exploitation des Forêts (ODEF)<br>(i.e. Office of Forest Development and Operation) | ➤ Programme design<br>➤ Programme related legal issues<br>➤ Programme status<br>➤ Sustainable development issues<br>➤ Baseline Determination<br>➤ Environmental impacts<br>➤ Stakeholder process<br>➤ Issues affecting the local community<br>➤ PoA requirements by the national local governments<br>➤ LoA application process   |
| /iv/   |            | Mr. Komla Azankpo                     | Direction de l'Environnement (i.e. DNA of Togo)  |   |
| /v/    |            | Mr. Yendoubou Lare                    | Laboratory of Solar Energy, University of Lomé (LES/UL)  |   |
| /vi/   |            | Mr. Dadobodma Sama                    | Research Centre of Social Engineering of Lomé (i.e. CRISTO)  |   |
| /vii/  |            | Mr. Valentin Kossi Adodo              | Sytap Afrique (i.e. ICS manufacturer)  |   |
| /viii/ | 2013-05-01 | Ms. Stephanie Dietsch                 | Responsible Entrepreneuriat Social   |   |
| /ix/   |            | Mr. Thomas Thivillon                  | (i.e. NGO)   |   |
| /x/    |            | Agbagla Akofa                         | Lomé City, Maritime  |   |

|        |  |  |        |  |
|--------|--|--|--------|--|
|        |  | <i>(household 1)</i>                         | region |  |
| /xi/   |  | Anato Paulina<br><i>(household 2)</i>        |        |  |
| /xii/  |  | Ekue Aka<br><i>(household 3)</i>             |        |  |
| /xiii/ |  | Aboyo Antoinette<br><i>(household 4)</i>     |        |  |
| /xiv/  |  | Agbekponou<br>Kokoli<br><i>(household 5)</i> |        |  |
| /xv/   |  | Sophie Awala<br><i>(household 6)</i>         |        |  |
| /xvi/  |  | Adjallah<br><i>(household 7)</i>             |        |  |
| /xvii/ |  | Catherine<br><i>(household 8)</i>            |        |  |

Validation Team considered the views obtained in these interviews while arriving at Validation Opinion.

## 2.3 Resolution of Outstanding Issues

The objective of this phase of the validation is to resolve any outstanding issues which need be clarified prior to TÜV Rheinland's conclusion on the PoA design. In order to ensure transparency a validation protocol is customised for the programme. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM PoA is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below. The completed validation protocol for the PoA is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of CDM criteria or where a risk to the fulfilment of programme objectives is identified. Corrective action requests (CAR) are issued, where:

- mistakes have been made with a direct influence on programme results;
- CDM and/or methodology specific requirements have not been met; or
- there is a risk that the programme would not be accepted as a CDM PoA or that emission reductions will not be certified.



A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

A forward action request (FAR) may be raised to highlight issues related to the PoA implementation that require review during the first verification.

| <b>Validation Protocol Table A &amp; B: Validation requirements</b>  |   |  |  |   |
|--|---|--|--|---|
| <b>Checklist Question</b>  | <b>Reference</b>  | <b>Means of Validation (MoV)</b>   | <b>Comment</b>   | <b>Draft and/or Final Conclusion</b>  |
| The various UNFCCC requirements as specified in the VVS are linked to checklist questions the project should meet. The checklist is organized in different sections, following the logic of the VVS. | Gives reference to documents where the answer to the checklist question or item is found. | Explains how conformance with the checklist question is investigated. Examples of means of validation are document review (DR) or interview (I). N/A means not applicable. | The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached. | This is either acceptable based on evidence provided (OK), or a corrective action request (CAR) due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the validation team has identified a need for further clarification. |

| <b>Validation Protocol Table C: List of Requests for Corrective Action (CAR) and Clarification (CL)</b>        |   |  |  |
|--|---|--|--|
| <b>Draft report clarifications and corrective action requests</b>  | <b>Ref. to checklist question in table C</b>  | <b>Summary of project owner response</b>   | <b>Validation conclusion</b>   |
| If the conclusions from the draft Validation are either a CAR or a CL, these should be listed in this section. | Reference to the checklist question number in Table C where the CAR or CL is explained. | The responses given by the project participants during the communications with the validation team should be summarized in this section. | This section should summarize the validation team's responses and final conclusions. The conclusions should also be included in Table C, under "Final Conclusion". |

**Figure 1. Validation protocol tables**

## 2.4 Internal Quality Control

The final validation report including the validation findings underwent a technical review before requesting registration of the PoA. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for CDM validation and verification.

## 2.5 Validation Team

Before the assessment begins, members of the validation team are ensured to cover the technical area(s), sectoral scope(s) and relevant host country experience including local language ability for evaluating the CDM project activity. The qualification of the team is as per the criterias defined by the EB guidelines for qualification.

| Validation Team                |                                 |  | Type of Involvement     |             |                           |                                |                          |                   |                    |
|--------------------------------|---------------------------------|--|-------------------------|-------------|---------------------------|--------------------------------|--------------------------|-------------------|--------------------|
| Full name                      | Affiliation<br>TÜV<br>Rheinland | Appointed for Sectoral<br>Scopes (Technical Areas) | Supervising the<br>work | Desk review | Site Visit +<br>Interview | Report and<br>protocol Writing | Technica Expert<br>Input | Reporting Support | Technical Reviewer |
| Mr. Feng Hu* (ex TL)           | China                           | 1.2, 3.1, 13.1                                     | X                       | X           | X                         | X                              |                          |                   |                    |
| Ms. Jia Liu                    | China                           | 1.2  | X                       | X           |                           | X                              |                          |                   |                    |
| Mr. Harold Hai                 | China                           | 1.2, 3.1, 6.1, 13.1                                |                         | X           | X                         |                                | X                        |                   |                    |
| Mr. Abdoulaye Robil<br>Nassoma | n/a                             | n/a  |                         | X           | X                         |                                |                          |                   |                    |
| Dr. Lixin Li                   | China                           | 1.1, 1.2, 2.1, 2.2, 3.1, 4.5                       |                         |             |                           |                                |                          |                   | X                  |

\* Until January 2014

### 3 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the programme design as documented and described in the revised PoA-DD and the real-case CPA-DD.

#### 3.1 Approval and Participation

##### 3.1.1 Letter of Approval

According to the PoA-DD, the proposed programme is a bilateral CDM PoA which involves two project participants: Man and Man Enterprise, also acting as the coordinating / managing entity (CME) of the PoA, from the host country of the PoA (i.e. Togo), and Eneco Energy Trade B.V. from the Annex I country (i.e. the United Kingdom of Great Britain and Northern Ireland).

Man and Man Enterprise is a private company /15.1/, which is qualified to carry out business activities in Togo. The host party, i.e. Togo, meets all relevant participation requirements in CDM. The LoA from the DNA of Togo /37.1/ has been received for confirming the voluntary participation and the coordination of the PoA by Man and Man Enterprise; and also the PoA assisting to achieve the sustainable development of Togo. The LoA from the DNA of the United Kingdom of Great Britain and Northern Ireland (i.e. the UK) /38.1/ has also been received for confirming the voluntary participation of Eneco Energy Trade B.V. in the PoA.

According to Section A.4.5 and Annex 2 of the PoA-DD and on-site interview with the representative from Man and Man Enterprise /i/ and the representative of the DNA of Togo /iv/, there is no public funding from Annex I countries involved in the PoA. Thus the validation team confirms that there is no diversion of official development assistance (ODA) towards Togo involved in the proposed PoA.

Table 2: The below table summarizes the project participant and party involved.

|                             |                        |  |
|-----------------------------|------------------------|--|
| <b>Project participants</b> | Man and Man Enterprise | Eneco Energy Trade B.V.                              |
| <b>Parties involved</b>     | Togo (host country)    | United Kingdom of Great Britain and Northern Ireland |
| <b>APPROVAL</b>             |                        |  |
| LoA received                | Yes                    | Yes  |
| Date of LoA                 |                        |  |
| Reference to document       | No. 0738/DE/AND        | EA/Eneco/01/2013                                     |
| LoA received from           | PP                     | PP   |

|  |  |   |
|--|--|---|
| Validation of authenticity                                 | Email communication with the DNA of Togo /37.2/                                      | Email from the DNA of UK /38.2/   |
| Validity of LoA  | Valid  | Valid   |
| <b>PARTICIPATION</b>                                       |  |   |
| Party is party to Kyoto Protocol                           | Yes. Togo accessioned the Kyoto Protocol on 2 <sup>nd</sup> July 2004 <sup>1</sup> . | Yes. The UK ratified the Kyoto Protocol on 31 <sup>st</sup> May 2002 <sup>2</sup> . |
| Voluntary participation and confirmation of coordination   | Yes. Confirmed from the LoA /37.1/.  | Yes. Confirmed from Statement 2 of the LoA /38.1/.                                  |
| Diversion of official development aid towards host country | Not applicable   | No<br>/i/ /iv/  |
| Programme contribution to SD                               | Yes. Confirmed from the LoA /37.1/.  | Not applicable  |

The validation team confirms that the information related to the letter of approval as mentioned in the above table is authentic. The validation team has confirmed the same through DNA website / telephonic interview or email communication with the DNA personnel. The entire project participants listed in the tabular form of the PDD have obtained the letter of approval from their respective DNA.

### 3.1.2 Modalities of Communications

| Requirement of MOC  | Criteria fulfilled  | Determination by the validation team   |
|---|---|--|
| Is the focal point identified   | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No  | Yes. The focal point is identified in the signed MoC /14/.   |
| Is the MOC signed by all project participant (including focal point identified entity/personal)   | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No  | Yes. The MoC /14/ is signed by all project participants (including focal point identified entity/personal).            |
| Is the written confirmation obtained by the PP's stating the authorization, specimen signatures and personal details, employment status are valid and accurate? | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input checked="" type="checkbox"/> Not applicable | The MoC /14/ is directly signed and received from the CME of the proposed PoA. Thus no written confirmation is needed. |
| Is MOC received by the validation team from the PP with whom DOE has the contractual relationship?  | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No  | Yes. The MOC /14/ is received by the validation team from the CME with whom DOE has the contractual relationship.      |

<sup>1</sup> [http://unfccc.int/kyoto\\_protocol/status\\_of\\_ratification/items/2613.php](http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php)

<sup>2</sup> [http://unfccc.int/kyoto\\_protocol/status\\_of\\_ratification/items/2613.php](http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php)

The validation team confirms that the applicable latest template has been employed by the project participant for the MoC. The MoC has been received from the CME with whom DOE has the contractual relationship. All the personal who have duly signed the MoC have been confirmed from email communication with the project participants.

### 3.2 Programme of Activities Design Documents

The validation team confirmed that the provided PoA-DD /1.2/ and a real-case CPA-DD /2.2/ are based on the latest SSC-PoA-DD template /3.1/ and SSC-CPA-DD template /4.1/, and also correctly completed in accordance with relevant guidelines /3.2/ /4.2/.

### 3.3 Program Description

The programme aims at replacing traditional cook stoves with highly efficient biomass fired cook stoves (i.e. improved cook stoves (ICSs)) in Togo. As described in the PoA-DD /1/, the geographical boundary of the PoA is the entire country of Togo, which is in accordance with the requirement of the VVS (Version 06.0, 11<sup>th</sup> April 2014) /5.1/. The CME also states in the PoA-DD that post registration change will not be requested to extend the geographical boundary of the PoA. By checking public references (e.g. Google Earth and the website of Central Intelligence Agency (CIA) of the U.S /20/), the central geographical coordinates of the location of the PoA (i.e. Togo) and the 1<sup>st</sup> real case of the CPA (i.e. urban areas of Maritime Region) are confirmed as below:

|  | North Latitude |         | East Longitude |         |
|--|----------------|---------|----------------|---------|
| PoA (i.e. Togo)  | 8°00'          | +8.0000 | 1°10'          | +1.1667 |
| 1 <sup>st</sup> real-case CPA<br>(i.e. Maritime<br>Region) | 6°8'16''       | +6.1378 | 1°12'45''      | +1.2125 |

As per the PoA-DD, the ICSs, which will be disseminated to local households, could allow quicker heating-up, longer cooking and heat retaining with less woodfuel consumption as well as lower combustion fumes. The fuel that is used by the ICSs is charcoal. Emission reductions can be achieved by less use of non-renewable biomass (i.e. charcoal). As confirmed from on-site interview with the CME /i/, the ICSs will be sold to households through local resellers including NGOs distribution network and small and medium distribution enterprises. The expected price of the ICS is 6,000 FCFA, which may change along project implementation, as described in the PoA-DD.

All the CDM component project activities (CPAs) under the PoA will be implemented in Togo by Man and Man Enterprise Togo and/or other potential implementing entities (IEs). The certificate of Man and Man Enterprise Togo's company registration /15.2/ is received and checked. It is confirmed that Man and Man Enterprise Togo, as the implementing entity of the first real-case CPA, is a registered company and is able to carry out relevant activities of this CPA in Togo.

Each ICS in the CPA will have a unique serial number to ensure that each ICS can be traced to one specific user in one specific CPA. Each ICS user will form a contractual relationship with the CME by signing a sale agreement /25//23/, which include the following information:

- *Name of customer and contact details (address & phone number if applicable)*
- *Name of the PoA*
- *Name of the CPA*
- *User group membership (if applicable)*
- *Date & location of purchase*
- *Signature of buyer*
- *Stove model*
- *Serial number of the stove*
- *Name of seller*

The information of each ICS is linked with the user to form a database, which will be updated as per the progress of the CPA(s) and maintained by the CME. This not only helps to trace the emission reductions from usage of the ICSs but also can prevent the double counting of each ICS (or even each CPA) within the PoA. Thus it is considered not possible for a CPA to participate in more than one PoA or registered as an individual CDM project.

According to the PoA-DD, the ICSs being employed by the PoA and its CPAs should reach a thermal output efficiency of at least 20%, which shall be tested according to an international testing protocol. During on-site visit, the validation team observed that the ICS applied in the first real-case CPA is called “jiko” type, which is composed of two parts, i.e. the metallic body and the ceramic liner. The ICSs to be distributed in the PoA will have four sizes, as per the PoA-DD and summarized in the below table:

| <b>Stove size</b> | <b>Typical application</b>   | <b>Number of people that the ICS could serve</b> |
|-------------------|--|--|
| Small             | <i>Mostly for domestic use</i>   | 2  |
| Medium            | <i>Commonly used for both domestic and non-domestic (commercial or institutional) applications</i> | 4 to 6   |
| Large             | <i>Exclusively used in non-domestic (commercial or institutional) applications</i>                 | <i>Up to 15 depending on food cooked</i>         |
| Extra-Large       | <i>Exclusively used in non-domestic (commercial or institutional) applications</i>                 | <i>Up to 30 depending on food cooked</i>         |

For the 1<sup>st</sup> real-case CPA, only medium size ICS will be distributed and the target users are only local households relying on charcoal for cooking in urban areas of Maritime region. According to the Water Boiling Test (WBT) conducted by Laboratory of Solar Energy of University of Lomé (LES/UL) /23/, which is a credible third party, the average efficiency of the ICS adopted in the 1<sup>st</sup> real-case CPA is confirmed to be 30.9% and the output capacity of each ICS is confirmed to be 0.95 kW<sub>th</sub>. For the future CPA which adopts small, large and/or extra-large size ICSs, the specifications of the ICS (e.g. output capacity and efficiency, etc.) will be checked at the time of CPA inclusion.

By checking the Sale Purchase Agreement (Template) /25/, it is confirmed that either the ceramic liner part of the ICS or the whole ICS will be replaced when the ICS is found not operating (e.g. the liner part is broken), as indicated in Article 2. As per on-site interview with the CME /i/, if replacement is required during household inspection, it will be done directly on-site and only take a few minutes. Thus it is considered that the replacement is unlikely to result in an overestimation of the emission reductions. A template of ICS Replacement Monitoring Sheet /40/ is available for monitoring the replacement of the ICSs. The replacement will be recorded during monitoring.

As per on-site observation and interview with local households /x-xvii/, the validation team confirms that the stoves being used in baseline were 3-stone stove or traditional fired with charcoal. According to the report “Investigation of domestic energy consumption in Togo” by CRISTO dated 2007 /42/, the local households mainly acquire woody biomass from the nearby forests or buy from local market in the baseline. According to the applied methodology AMS-II.G./Version 05, for the efficiency of the stove being replaced, *“a default value of 0.10 may be optionally used if the replaced device is a three stone fire, or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney”*. Moreover, according to the CRISTO report /42/, it is confirmed that the Asuto stove (same model as the one distributed under the PoA) is reducing from 50 to 60% the consumption in terms of quantity compared to the consumption of traditional iron charcoal stove. By using the lower end of the range (i.e. 50%), the efficiency of traditional iron charcoal cook stove in the 1<sup>st</sup> CPA is conservatively calculated as  $30.9\% \times 50\% = 15.5\%$ .

According to the applied methodology AMS-II.G./Version 05, woody biomass can be divided into non-renewable biomass (NRB) and demonstrably renewable woody biomass (DRB). Assessment of the woody biomass used in the baseline scenarios (either for direct combustion in stoves or for making charcoal) within the geographical boundary of the PoA (i.e. Togo) is provided in Part II, section B.6.1 of the PoA-DD, which is crosschecked with Energy Information System of Togo (SIE-Togo) 2007 Report issued by the Ministry of Energy of Togo /28/ and confirmed traceable and valid. *Please also refer to discussion in section 3.8 below.*

Detailed descriptions of eligibility criteria for inclusion of a CPA are provided in section B.2, which include 16 different criteria. Further information of “*Compliance rationale*” is also described for each criterion to assess the fulfillment of each CPA for inclusion, which is checked by the validation team. *Please refer to section 3.4 for detailed discussion.*

As per document review and on-site interview with representative of the DNA of Togo /iv/, the validation team reveals there is no mandatory regulation on the development and use of ICSs. In addition, the representative of the DNA of Togo /iv/ confirmed that no financial support/subsidy from the government was provided to the purchase of ICSs. Thus, the validation team considers the PoA is a voluntary action by the PP from the host country (i.e. Man and Man Enterprise). The voluntary participation of the PP from the Annex I country is also confirmed from the LoA issued by the DNA of the UK /38.1/.

According to the Glossary CDM Terms (Version 07.0, EB 70 Annex 7) /11/, the starting date of the PoA/CPA is defined as, *“In the context of a CDM project activity or CPA, the earliest date at which either the implementation or construction or real action of a CDM project activity or CPA begins. In the context of a CDM PoA, the date on which the coordinating/managing entity officially notifies the secretariat and the DNA of their intention to seek the CDM status or the*



date of publication of the PoA-DD for global stakeholder consultation in accordance with the relevant CDM rules and requirements". As per Part I section D.1 of the PoA-DD, the starting date of the PoA is selected as "13/03/2013 (date of publication of the proposed PoA for Global stakeholder consultation)". It is confirmed in line with definition in the Glossary CDM Terms. Meanwhile, the length of the PoA is taken as 28 years, which complies with the requirement of Clause 197 of the VVS.

In the CPA-DD Part I, Section A.9.1, the starting date of crediting period of a CPA is selected as "01/08/2014 (implementation date), or on the date of inclusion of the CPA in the PoA, whichever is later", which is in accordance with the requirement stated in the CDM Project Standard (Version 06.0, 11<sup>th</sup> April 2014) /5.2/ (i.e. "The start date of the crediting period of a CPA shall be on or after: (i) The date of registration of the PoA, if the corresponding CPA-DD is submitted together with the request for registration").

Table 3: The critical programme description milestones from the PoA-DD are tabulated as follows:

| Starting date of PoA  | Length of the PoA   |
|---|---|
| <p>13<sup>th</sup> March 2013 (date of global stakeholder consultation)</p> <p>According to the Glossary CDM Terms (Version 07.0, EB 70 Annex 7) /11/, the starting date of the PoA is defined as "the date on which the coordinating/managing entity officially notifies the secretariat and the DNA of their intention to seek the CDM status or the date of publication of the PoA-DD for global stakeholder consultation in accordance with the relevant CDM rules and requirements". Since the Public stakeholder comment process was commenced on 13<sup>th</sup> March 2013, thus the validation team confirmed that the defined start date of the PoA is valid.</p> | <p>28 years</p> <p>It is confirmed in compliance with the requirement of Clause 197 of the VVS.</p> |

#### **Project Description of the first real-case CPA**

| Item/Activity           | Description in the CPA-DD   | Validation Opinion   |
|-------------------------|---|--|
| CPA Title               | Man and Man Enterprise Improved Cooking Stoves Programme in Togo - CPA001 | Confirmed from the CPA-DD /2.2/.   |
| CPA Implementer         | Man and Man Enterprise Togo   | Man and Man Enterprise Togo is a private company /15.2/.                           |
| Host country of the CPA | Togo  | Confirmed from the CPA-DD /2.2/.   |
| Location of the CPA     | urban areas of the whole Maritime region                                  | Confirmed from on-site interview with the representative of Man and Man Enterprise |



| Item/Activity  | Description in the CPA-DD  | Validation Opinion   |
|--|--|--|
|  |  | /i/ that the PoA and the included CPAs will be implemented in the urban areas of the whole Maritime region.  |
| ICSs to be applied   | -- “Jiko type”;<br>-- use of charcoal  | <p>As per on-site observation of the ICSs and the workshop of Man and Man Enterprise as well as the description in section A.2 of the real-case CPA-DD /2.2/, it is confirmed that the ICS applied in the first real-case CPA is called “Jiko” type, which uses charcoal as fuel.</p> <p>The detailed technical specifications of the ICSs are also described in the CPA-DD.</p>   |
| Starting date of CPA   | 3 <sup>rd</sup> September 2013   | <p>According to the Glossary CDM Terms (Version 07.0, EB 70 Annex 7) /11/, the starting date of the CPA is defined as, “<i>In the context of a CDM project activity or CPA, the earliest date at which either the implementation or construction or real action of a CDM project activity or CPA begins</i>”.</p> <p>For the real-case CPA-DD Section A.8.1, the starting date of the CPA is selected as 3<sup>rd</sup> September 2013. The provided order of ICS /45/ is checked and confirmed valid. Based on on-site interview and document check, the validation team confirms that the date of the 1<sup>st</sup> order of ICSs purchase (i.e. 3<sup>rd</sup> September 2013) is the earliest date at which the real action of the 1<sup>st</sup> real-case CPA begins. Thus the starting date the 1<sup>st</sup> CPA is confirmed to be 3<sup>rd</sup> September 2013. Moreover, the validation team also confirms that it is after the GSP of the PoA-DD (i.e. 13<sup>th</sup> March 2013) and hence the starting date of CPA is valid.</p> |
| Starting date of crediting period and type of crediting period | -- 01/08/2014 (implementation date), or on the date of inclusion of the SSC-CPA in the PoA, whichever is later<br>-- Renewable crediting period: 7 years | <p>According to the CDM Project Standard (Version 06.0, 11<sup>h</sup> April 2014) /5.2/,</p> <p><i>“The start date of the crediting period of a CPA shall be on or after: (i) The date of registration of the PoA, if the corresponding CPA-DD is submitted together with the request for registration;</i></p>   |

| Item/Activity                                      | Description in the CPA-DD        | Validation Opinion   |
|--|----------------------------------|--|
|  |                                  | <p>(ii) <i>The date of approval of the corresponding specific case CPA-DD, if the specific case CPA-DD is submitted for approval by the Board in accordance with paragraph 144(b) above; (iii) The date when the CPA was included in accordance with the Project cycle procedure”.</i></p> <p>Thus, the selected starting date of crediting period is considered reasonable and accepted.</p> <p>Moreover, it is also confirmed that the length of the crediting period of the CPA would not exceed the end date of the PoA considering its length of 28 years.</p>  |
| Operational Lifetime of the CPA                    | 21 years                         | <p>As stated in the CPA-DD. Moreover, it is also stated in the CPA-DD that the ICSs will be renewed when find not operating anymore during the crediting period and will be agreed with participating households in ICS purchase contract. By checking the Sale Purchase Agreement (Template) /25/, it is confirmed that either the ceramic liner part of the ICS or the whole ICS will be replaced when the ICS is found not operating (e.g. the liner part is broken), as indicated in Article 2. A template of ICS Replacement Monitoring Sheet /40/ is available for monitoring the replacement of the ICSs and will be signed after each replacement. The serial number will be kept the same between the old ICS and the replace one or the one with a replaced ceramic liner, to avoid double counting.</p> |
| Contractual relationship with the CME into the PoA | N/A                              | <p>As per the document checked on-site, the IE of the 1<sup>st</sup> CPA is Man and Man Enterprise Togo, and the Legally binding agreement between the CME (i.e. Man and Man Enterprise) and the CPA implementer of the 1<sup>st</sup> CPA (i.e. Man and Man Enterprise Togo) /44/ has been checked and confirmed valid.</p>   |
| Confirmation                                       | Declared in Section A.4.7 of the | The validation team checked the registered   |

| Item/Activity  | Description in the CPA-DD | Validation Opinion   |
|--|---------------------------|--|
| of this small-scale CPA is neither registered as an individual CDM project activity nor a part of another registered PoA | CPA-DD                    | CDM projects and registered PoA in UNFCCC webpage and cannot see any evidence that the CPA has registered as an individual CDM project activity or a CPA of another registered PoA. Thus it is considered not possible for a CPA to participate in more than one PoA or registered as an individual CDM project. |

In summary, by means of document review and on-site interviews with stakeholders, the validation team considers that the programme descriptions in the PoA-DD /1.2/ as well as the first real-case CPA-DD /2.2/ are accurate and complete.

Herewith, the Validation Team summarizes major changes between webhosted PoA-DD and final version of PoA-DD for submission as follows:

| Subject   | Webhosted PoA-DD  | Correction to webhosted PoA-DD in the final PoA-DD submission for registration with DOE assessment and reason of acceptance.   |
|---|---|--|
| PoA-DD (project title / participants involved/ project location /project technology etc.) | <p><b>Title:</b> Man and Man Enterprise Improved Cooking Stoves Programme in Togo</p> <p><b>Project Participants:</b> Man and Man Enterprise (Togo); Eneco Energy Trade B.V. (United Kingdom of Great Britain and Northern Ireland)</p> <p><b>Project location:</b> Togo</p> <p><b>Project technology:</b> Efficiency improvements in thermal applications of non-renewable biomass</p> | <p><b>Title:</b> <i>no change</i></p> <p><b>Project Participants:</b> <i>no change</i></p> <p><b>Project location:</b> <i>no change</i></p> <p><b>Project technology:</b> <i>no change</i></p>                 |
| Methodologies and tools applied ( scope and version numbers)                              | AMS-II.G./Version 05  | <i>no change</i>   |
| CER calculations (formula applied/ amount of emission reduction)                          | For the 1 <sup>st</sup> real-case CPA, it is estimated as 46,289 tCO <sub>2</sub> per year  | <p>For the 1<sup>st</sup> real-case CPA, it is estimated as 48,001 tCO<sub>2</sub> per year.</p> <p>The calculation of the emission reductions has been checked by the validation team and confirmed to be</p> |

|  |  |   |
|--|--|---|
|  |  | traceable and valid.  |
| Crediting period (type / start date)   | Renewable crediting period is chosen<br><br>For the 1 <sup>st</sup> real-case CPA, the start date of the crediting period is “01/04/2013 (expected implementation date), or on the date of inclusion of the CPA in the PoA, whichever is later”. | Renewable crediting period is chosen<br><br>For the 1 <sup>st</sup> real-case CPA, the start date of the crediting period is “01/08/2014 (implementation date), or on the date of inclusion of the SSC-CPA in the PoA, whichever is later”. |
| <p>Please refer to Appendix A of this report for details of each change between webhosted PoA-DD and the final PoA-DD for submission. The Validation Team has carried out the validation process based on the Webhosted PoA-DD and raised CARs/CLs against the project by issuing the validation protocol.</p> <p>With the updated information and corrections done on final PoA-DD, the PP has addressed all the CARs /CLs that were raised by the Validation Team.</p> <p>It is concluded that the Validation Team has reviewed the project in line with the VVS (Version 06.0, 11<sup>th</sup> April 2014) and all the evidence, corrections, justifications and updating done on the final PoA-DD with respect to CARs /CLs raised are accepted and closed by the Validation Team, issuing the positive validation opinion for project registration.</p> |  |   |

TÜV Rheinland validation team considers the project description of the PoA contained in the PoA-DD to be complete and accurate. The PoA-DD complies with the relevant methodology, tools, forms and guidance at the time of PoA-DD submission for registration.

### 3.4 Eligibility Criteria for CPA Inclusion

According to Clause 196 of the VVS /5.1/, the eligibility criteria for inclusion of a CPA in the PoA shall be assessed in accordance with the standard “*Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities*” (Version 03.0, EB 74 Annex 05).

As per document review, detailed eligibility criteria for inclusion of a CPA under the PoA are stated in section B.2 of the PoA-DD and also discussed in section B.2 of the CPA-DD to justify the eligibility of the first real-case CPA. The validation opinions on the selected eligibility criteria are listed as below,

| Conditions to be met under eligibility criteria in the PoA-DD    | Validation Opinion on the eligibility criteria  | Validation Opinion on the inclusion of the 1 <sup>st</sup> CPA  |
|--|---|---|
| 1. “ <i>The SSC-CPA takes place within the borders of Togo</i> ” | Since the geographical boundary of the PoA is set as Togo, this is confirmed to be a reasonable criterion according to Clause 16 (a) of the required eligibility criteria in the standard “ <i>Demonstration of</i> | For the 1 <sup>st</sup> CPA, it is confirmed from on-site interview with the representative of the IE of the 1 <sup>st</sup> CPA /i/ as well as the CPA-DD that the ICSs will only be distributed in urban areas of |

|   |   |   |
|---|---|---|
|   | <i>additionality, development of eligibility criteria and application of multiple methodologies for programme of activities” (Version 03.0, EB 74 Annex 05).</i>  | Maritime region, which is within the borders of Togo. Thus this criterion is fulfilled.   |
| 2. <i>“The SSC-CPA specifies the level and type of service (baseline technology is replaced by project technology for the same type/level of service/needs which is cooking) provided by the technology/measure as well as its performance which are in line with the technology outlined in SSC-PoA-DD and in compliance with national and/or international testing/certification requirements;<br/>Specifications of the technology/measure shall include the type, capacity and other key features of the design of the systems that will be checked at the time of CPA inclusion”</i> | OK. It is confirmed to be a reasonable criterion, which is in accordance with Clause 16 (c) of the required eligibility criteria in the standard <i>“Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities” (Version 03.0, EB 74 Annex 05).</i> | For the 1 <sup>st</sup> CPA, it is confirmed from on-site interview with the representative of the IE of the 1 <sup>st</sup> CPA /i/ as well as the CPA-DD that the project activity consists of the sale of ICS to households in Togo using the technology as outlined in the PoA-DD.<br><br>The ICSs in the 1 <sup>st</sup> CPA are Jiko type of medium size and portable design. As described in the PoA-DD, it is made of two different parts: the metallic body and the ceramic liner. Its performance lies in the production of the liner made of three different type of clay which retain efficiently the heat released by the combustion of the fuel and avoid losses. Moreover, the performance of the ICS adopted in the 1 <sup>st</sup> CPA has been tested according to the international testing requirement of the Water Boiling Test (WBT) /23.1/. The thermal efficiency is tested as 30.9% and the power output is 0.95 kW <sub>th</sub> .<br><br>Thus this criterion is fulfilled. |
| 3. <i>“The target group/potential user of each SSC-CPA shall be the urban and/or rural households/communities/small and medium enterprises”</i>   | OK. This is confirmed to be a reasonable criterion according to Clause 16 (i) of the required eligibility criteria in the standard <i>“Demonstration of additionality, development of</i>   | For the proposed PoA, the target users include: <ul style="list-style-type: none"> <li>• Households (urban and/or rural)</li> <li>• communities such as</li> </ul>  |

|   |   |   |
|---|---|---|
|   | <i>eligibility criteria and application of multiple methodologies for programme of activities” (Version 03.0, EB 74 Annex 05).</i>  | <p>schools, police camps</p> <ul style="list-style-type: none"> <li>small and medium enterprises such as restaurants</li> </ul> <p>For the 1<sup>st</sup> CPA, as confirmed from on-site visit and interview, the target users are confirmed to be urban households using charcoal stoves in the baseline in Maritime region. Thus this criterion is fulfilled.</p>   |
| 4. “The distribution mechanisms of ICS shall be both the sale and the installation if ICS at home by the CPA-implementer (e.g. in case of built-in stoves) or the sale of the ICS only”   | <p>OK. This is confirmed to be a reasonable criterion according to Clause 16 (i) of the required eligibility criteria in the standard “<i>Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities</i>” (Version 03.0, EB 74 Annex 05).</p>  | <p>For the 1<sup>st</sup> CPA, it is implemented by Man and Man Enterprise. The ICSs will be sold by the CME, i.e. Man and Man Enterprise. Thus this criterion is fulfilled.</p>  |
| 5. “In reference to the “Guidelines on the demonstration of additionality of small-scale project activities”, the annual energy savings generated by each ICS sold under the framework of a CPA included under this PoA shall not exceed 5% of the small-scale CDM thresholds (i.e. 5% of 180 GWhth = 9,000 MWh)” | <p>OK. This is confirmed to be a reasonable criterion according to Clause 16 (f) of the required eligibility criteria in the standard “<i>Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities</i>” (Version 03.0, EB 74 Annex 05).</p> <p>As per the PoA-DD /1.2/, the PP chooses to demonstrate the additionality of the CPAs according to Option (c) of the positive list of the “<i>Guidelines on the demonstration of additionality of small-scale project activities</i>” (Version 09) /8.1/. Thus it is confirmed to be a reasonable criterion.</p> | <p>For the 1<sup>st</sup> CPA, the calculation of annual energy saving per ICS is checked. According to the report “Investigation of domestic energy consumption in Togo” by CRISTO dated 2007 /42/, it is confirmed that the Asuto stove (same model as the one distributed under the PoA) is reducing from 50 to 60% the consumption in terms of quantity compared to the consumption of traditional iron charcoal stove so called Malagasy Stove. It is considered conservative to use of lower end of the range (i.e. 50%) in the calculation. Thus the annual energy saving per ICS is confirmed to be 50% * <math>M_{\text{woody biomass, app}} * NCV = 50\% * 5.18 * 4.167 = 10.8</math></p> |



|  |   |  |
|--|---|--|
|  |   | MWh/y, which is lower than 5% of the small-scale CDM thresholds (i.e. 5% of 180 GWh <sub>th</sub> = 9,000 MWh <sub>th</sub> ). Thus this criterion is fulfilled.   |
| 6. <i>“The CPA’s annual energy savings do not exceed 180 GWh<sub>th</sub>”.</i>  | OK. This is confirmed to be a reasonable criterion according to Clause 16 (k) of the required eligibility criteria in the standard <i>“Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”</i> (Version 03.0, EB 74 Annex 05). | For the 1 <sup>st</sup> CPA, as assessed above, the annual energy saving per ICS is confirmed to be 10.8 MWh/y, which is lower than The number of ICSs to be expected to be 16,666, to ensure that the total annual energy savings do not exceed 180 GWh <sub>th</sub> . Thus this criterion is fulfilled. |
| 7. <i>“The CPA complies and applies the small-scale baseline and monitoring methodology AMS II.G Version 05.0”</i>   | OK. This is confirmed to be a reasonable criterion according to Clause 16 (e) of the required eligibility criteria in the standard <i>“Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”</i> (Version 03.0, EB 74 Annex 05). | For the 1 <sup>st</sup> CPA, it is confirmed to meet applicability criteria of the applied methodology AMS-II.G./Version 05.0. Please refer to section 3.6.1 below for details. Thus this criterion is fulfilled.  |
| 8. <i>“The CPA is either implemented by the Coordinating/managing entity or by another entity which has signed a binding agreement with the CME which ensures that they are aware and agree that their activity is subject to a PoA and that their carbon rights have to be relinquished to the CME”</i> | OK. This is confirmed to be a reasonable criterion.   | For the 1 <sup>st</sup> CPA, it is implemented by the CME. Thus there is no need to sign a binding agreement regarding the ownership of emission reductions. Thus this criterion is fulfilled.   |
| 9. <i>“Each cook stove sold under the SSC-CPA will be uniquely marked using ICS serial number (or installation GPS coordinates for built-in cooking appliance), identified by a mean of showing that the cook stove is attached to this specific PoA and recorded in</i>                                 | OK. This is confirmed to be a reasonable criterion according to Clause 16 (b) of the required eligibility criteria in the standard <i>“Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme</i>  | For the 1 <sup>st</sup> CPA, it is confirmed from on-site interview with the representative of the IE of the 1 <sup>st</sup> CPA /i/ as well as the CPA-DD that each ICS will be uniquely marked with a serial number. Thus this criterion is fulfilled.   |

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| <i>an electronic database for all PoA life, as described in SSC-PoA-DD section C in order to ensure that no double counting will occur"</i>    | <i>of activities"</i> (Version 03.0, EB 74 Annex 05).   |  |
| 10. <i>"The SSC-CPA-DD has been reviewed by the CME and submitted to a DOE for inclusion into the PoA"</i>                                     | OK. This is confirmed to be a reasonable criterion to describe the responsibility of the CME in the CPA inclusion.  | For the 1 <sup>st</sup> CPA, the validation team has conducted on-site visit, stakeholder interview and document review. Thus this criterion is fulfilled.   |
| 11. <i>"A local stakeholder consultation has been conducted prior to the inclusion of the SSC-CPA"</i>   | OK. This is confirmed to be a reasonable criterion according to Clause 16 (g) of the required eligibility criteria in the standard <i>"Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"</i> (Version 03.0, EB 74 Annex 05). | As per the PoA-DD, the local stakeholder consultation analysis is done at PoA level. For the 1 <sup>st</sup> CPA, <i>please refer to section 3.12 below for detailed discussion.</i> Thus this criterion is fulfilled.   |
| 12. <i>"The SSC-CPA sampling plan complies with the standard "Sampling and surveys for CDM project activities and programme of activities"</i> | OK. This is confirmed to be a reasonable criterion according to Clause 16 (j) of the required eligibility criteria in the standard <i>"Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"</i> (Version 03.0, EB 74 Annex 05). | For the 1 <sup>st</sup> CPA, the sampling requirements are described in section D.7.2 as stipulated in the monitoring plan of the PoA-DD, and will be implemented during the crediting period. Please refer to section 3.9.3.1 below for details. Thus this criterion is fulfilled.  |
| 13. <i>"The SSC-CPA does not involve any public funding according to the OECD definitions for Official Development Assistance (ODA)"</i>       | OK. This is confirmed to be a reasonable criterion according to Clause 16 (h) of the required eligibility criteria in the standard <i>"Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"</i> (Version 03.0, EB 74 Annex 05). | For the 1 <sup>st</sup> CPA, it is implemented by the CME, i.e. Man and Man Enterprise. As per on-site interview with the representative from Man and Man Enterprise /i/ and the representative of the DNA of Togo /iv/, there is no public funding from Annex I countries involved in the PoA. Moreover, it is also stated in the section A.11 that no public funding is involved. Thus the validation team confirms that there is no diversion of official |



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|   |   | development assistance (ODA) towards Togo involved in the proposed PoA as well as the 1 <sup>st</sup> CPA, i.e. this criterion is fulfilled.  |
| 14. <i>“The SSC-CPA is demonstrably exempted from performing debundling check as described in section A.12 of SSC-CPA-DD”</i> | OK. This is confirmed to be a reasonable criterion according to Clause 16 (l) of the required eligibility criteria in the standard <i>“Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”</i> (Version 03.0, EB 74 Annex 05). | For the 1 <sup>st</sup> CPA, as assessed above, the annual energy saving per ICS is confirmed to be 10.8 MWh/y, which is lower than 1% of the small-scale CDM thresholds (i.e. 1% of 180 GWh <sub>th</sub> = 1.8 GWh <sub>th</sub> ). According to the standard <i>“Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”</i> (Version 02.1, EB 70 Annex 05), it is confirmed exempted from performing debundling check. Thus this criterion is fulfilled.   |
| 15. <i>“The starting date of the SSC-CPA is verifiable through documentary evidence”</i>                                      | OK. This is confirmed to be a reasonable criterion according to Clause 16 (d) of the required eligibility criteria in the standard <i>“Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”</i> (Version 03.0, EB 74 Annex 05). | For the real-case CPA-DD Section A.8.1, the starting date of the CPA is selected as 3 <sup>rd</sup> September 2013. The provided order of ICS /45/ is checked and confirmed valid. Based on on-site interview and document check, the validation team confirms that the date of the 1 <sup>st</sup> order of ICSs purchase (i.e. 3 <sup>rd</sup> September 2013) is the earliest date at which the real action of the 1 <sup>st</sup> real-case CPA begins. Thus the starting date the 1 <sup>st</sup> CPA is confirmed to be 3 <sup>rd</sup> September 2013. Moreover, the validation team also confirms that it is after the GSP of the PoA-DD (i.e. 13 <sup>th</sup> March 2013) and hence the starting date of CPA is valid. Thus this criterion is considered fulfilled at this stage. |
| 16. <i>“The baseline</i>  | OK. This is confirmed to be a   | For the 1 <sup>st</sup> CPA targeting   |

|   |   |   |
|---|---|---|
| <i>consumption and baseline stove efficiency of target group selected should be determined"</i> | reasonable criterion to determine the baseline parameter for CPA inclusion. | urban household users, the baseline consumption for per urban household capita and the efficiency of baseline stove are determined in the CPA-DD. Thus this criterion is fulfilled. |
|---|---|---|

In conclusion, the validation team confirms that the CME has employed clear and unambiguous criteria for the inclusion of the CPA, which meets the requirement of standard *"Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"* (Version 03.0, EB 74 Annex 05) /10.2/. For the 1<sup>st</sup> CPA, it is considered fulfilling the above mentioned eligibility criteria and thus eligible to be included in the PoA.

### 3.5 Operational and Management Plan

The operational and management arrangement has been established in the PoA-DD Part I, section C for the implementation of PoA. The operation Management System can assure to meet the requirement indicated in the relevant section of SSC-PoA-DD form /3.1/:

|   |
|---|
| <b>a) Definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies</b>  |
| The detailed responsibilities of the Coordinating and Managing Entity (CME) (i.e. Man and Man Enterprise) and the SSC-CPA implementers are described in this part. It is also confirmed that potential SSC-CPA implementers will sign agreements with the CME (i.e Man and Man Enterprise) in which they cede rights to sell CERs generated by their respective SSC-CPAs to the CME. An operational and management diagram at PoA level is presented. |
| <b>b) Records of arrangements for training and capacity development for personnel</b>   |
| It is confirmed that the training and capacity development, indicative schedules or records will be part of the CPA inclusion review procedure. Moreover, relevant training arrangements from the PoA partner (when applicable) may be adopted and tailored.  |
| <b>c) Procedures for technical review of inclusion of CPAs</b>  |
| The review of the inclusion of CPAs will follow the requirements of the standard <i>"Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"</i> (Version 03.0, EB 74 Annex 05) /10.2/ and "reviewed by an independent compliance team appointed by CME".  |
| <b>d) A system/procedure to avoid double accounting</b>   |
| Each SSC-CPA implementer will sign a contract with the CME (i.e Man and Man Enterprise). Thus the SSC-CPA implementers will be aware of and have agreed that their activity is being subscribed to the PoA.   |
| As per the PoA-DD, the implementing entities will sign agreements with the CME, which ensure that they are aware and agree that the CPAs are subscribed to the PoA. For the 1 <sup>st</sup> CPA, it is implemented by Man and Man Enterprise, and the Legally binding agreement between the CME   |

(i.e. Man and Man Enterprise) and the CPA implementer of the 1<sup>st</sup> CPA (i.e. Man and Man Enterprise Togo) /44/ has been checked and confirmed valid.

For ICSs which are out of their lifetime, replacement service will be provided as per the sale purchase agreement /25/. Relevant information about the users and stoves, as listed under “(d) *A system/procedure to avoid double accounting*” in Part I section C of the PoA-DD, will be recorded in the ICS Replacement Monitoring Sheet /40/. The validation team is able to confirm that the recorded information could avoid double counting of the stoves.

#### **e) Records and documentation control process for each CPA under the PoA**

The CME will keep electronic records of relevant information of each CPA under the PoA, which are collected by the SSC-CPA implementers. The participating households and the SSC-CPA implementer will sign agreement, which include the following information:

- *Name of customer and contact details (address & phone number if applicable)*
- *Name of the PoA*
- *Name of the CPA*
- *User group membership (if applicable)*
- *Date & location of purchase*
- *Signature of buyer*
- *Stove model*
- *Serial number of the stove*
- *Name of seller*

These data will be collected by IEs and regularly transmitted to the CME to form and maintain an electronic database. Moreover, the original copies of sale agreements of the ICSs will also be maintained by the CME.

#### **f) Measures for continuous improvements of the PoA management system**

The CME will hold periodic meetings to ensure continuous improvements, and will also hold extraordinary meetings in case if a SSC-CPA is internally approved for inclusion but yet rejected by the DOE.

#### **g) Any other relevant elements; Debundling check**

According to the “Guidance for Determining the Occurrence of Debundling under a Programme of Activities (PoA)” included in the “Guidelines on assessment of de-bundling for SSC project activities” (Version 03, EB 54 Annex 13), “*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*”.

According to “Clean Development Mechanism Project Standard” (Version 06.0, 11<sup>th</sup> April 2014), for Type II small scale project activities, the maximum energy saving is 60 GWh, which is equivalent to a 180 GWh thermal output of the equipment for thermal applications of biomass. Thus the threshold for exemption from performing de-bundling check of a CPA of the proposed PoA is 1% of 180GWh<sub>th</sub>, i.e. 1.8 GWh<sub>th</sub>.

For the 1<sup>st</sup> CPA, as assessed above, the annual energy saving per ICS is confirmed to be 10.8

MWh/y, which is lower than 1% of the small-scale CDM thresholds (i.e. 1% of 180 GWhth = 1.8 GWhth). According to the standard *“Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”* (Version 02.1, EB 70 Annex 05), it is confirmed exempted from performing debundling check. Thus this criterion is fulfilled.

Moreover, as described in Part II, section B.7.2 of the PoA-DD, the monitoring team will be established by the CME (i.e. Man and Man Enterprise). This ensures that the CME would have the competencies to check the eligibility criteria of the CPAs before inclusion in the registered PoA.

In conclusion, the operational and management arrangements established by the CME for the implementation of the PoA have met the requirements in the standard *“Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”* (Version 03.0, EB 74 Annex 05) /10.2/ and have been confirmed by the validation team to be appropriate and valid.

### 3.6 Baseline and Monitoring Methodology

#### 3.6.1 Applicability of the selected methodology

As per the PoA-DD Section B.3, the PoA and its CPAs applies the latest approved baseline and monitoring methodology AMS-II.G./Version 05.0 “Energy efficiency measures in thermal applications of non-renewable biomass”.

Applicability criteria for the baseline methodology in Part II, section B.2 of the PoA-DD are assessed by the validation team by means of document review and interview.

| Applicability criteria of the methodology<br>AMS-II.G./Version 05.0   | Criteria fulfilled   | Assessment by the validation team   |
|---|--|---|
| <i>“This category comprises efficiency improvements in thermal applications of nonrenewable biomass. Examples of applicable technologies and measures include the introduction of high efficiency biomass fired cook stoves or ovens or dryers and/or energy efficiency improvements in existing biomass fired cook stoves or ovens or dryers.”</i> | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | As confirmed during on-site interview with the representative of the CME /i/, the CPAs included in the PoA will disseminate highly efficient cook stoves (i.e. improved cook stoves (ICSs)) in Togo, to replace traditional stoves used in the baseline.                |
| <i>“Project participants shall be able to show that non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.”</i>   | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | As described in Part II, section B.2 of the PoA-DD, <i>“each SSC-CPA will prove that non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics”</i> . |

|   |  |  |
|---|--|--|
|   |  | For the 1 <sup>st</sup> real-case CPA, as per discussion in section D.2 of the CPA-DD and also confirmed from public reference from FAO /31/ regarding change of forest coverage in Togo, non-renewable biomass has been used since 31 <sup>st</sup> December 1989, with a trend of depletion of forest woody biomass/carbon stock.  |
| “The aggregate energy savings of a single project activity shall not exceed the equivalent of 60 GWh per year or 180 GWh thermal per year in fuel input.” | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | <p>As described in Part II, section B.2 of the PoA-DD, “each SSC-CPA will qualify as a small-scale project activity as it will remain under the limits of small-scale project activity Type II”.</p> <p>For the 1<sup>st</sup> CPA, as assessed above, the annual energy saving per ICS is confirmed to be 10.8 MWh/y, which is lower than than 1% of the small-scale thresholds (i.e. 1.8 GWh<sub>th</sub>). The number of ICSs to be expected to be 16,666, to ensure that the total annual energy savings do not exceed 180 GWh<sub>th</sub>. Thus this criterion is fulfilled.</p> |

Therefore, the validation team confirms that the applied methodology AMS-II.G./Version 05.0 is applicable for CPAs under the PoA.

### 3.6.2 CPA Boundary

According to the applied AMS-II.G./Version 05.0, the project boundary of a CPA is described in the Part II, section B.3 of the PoA-DD as “the physical, geographical site of the efficient devices that burn biomass”. Moreover, as per section A.3 of the 1<sup>st</sup> CPA-DD /2.2/, the 1<sup>st</sup> CPA is located in urban areas of Maritime region, which is within the PoA boundary of Togo and confirmed to be appropriate and valid.

The sources and gases included in the CPA boundary (in baseline and project activity) are also discussed. As per the applied methodology AMS-II.G./Version 05.0, only CO<sub>2</sub> is considered in calculating emission reductions, which is from combustion of non renewable biomass.

### 3.6.3 Baseline Identification

As per PoA-DD Part II, section B.4, the baseline scenario is described as “it is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs”, which is prescribed in the applied methodology AMS-

II.G./Version 05.0 and thus confirmed valid. Moreover, the baseline scenario is further explained in details in the PoA-DD,

*“The vast majority of Togo’s domestic energy requirements are covered by non-renewable woodfuel. Currently the common systems used for cooking are the traditional open fire (3-stone) system and traditional stoves which are still dominant in most of the households”.*

The above information is confirmed from on-site inspection and interview with local households /x-xvii/ and the representative of the DNA of Togo /iv/, as well as document review of the public reference /42/. Thus, the validation team confirms that the baseline for the proposed PoA has been reasonably identified according to the applied methodology AMS-II.G./Version 05.0. The validation took cognizance of § Section 7.12 of VVS (Version 06.0, 11<sup>th</sup> April 2014).

As per the applied methodology AMS-II.G./Version 05.0, “it is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs”. The validation team confirms that the proposed project activity meets the above requirement. Therefore, the baseline scenario as prescribed in the AMS-II.G./Version 05.0 is applicable to the proposed project activity. The validation took cognizance of § Section 7.12 of VVS (Version 06.0, 11<sup>th</sup> April 2014).

|  |  |  |
|--|--|--|
| The approved baseline methodology applicable to the project:<br>explicit criteria<br>implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE calculations) | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | As per AMS-II.G./Version 05.0, the baseline scenario is prescribed. Please see details in Section 3.6.1  |
| PoA-DD includes all assumptions and data used by project participants  | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | As per AMS-II.G./Version 05.0, the baseline scenario is prescribed. As per OSV and desk review, the validation team confirms that all the assumptions and data included in the PoA-DD are transparent and traceable. |
| All the references and documents used are relevant for establishing the baseline scenario  | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | As per AMS-II.G./Version 05.0, the baseline scenario is prescribed. All the reference and documents used are relevant for establishing the baseline scenario.  |
| All the references and documents used are correctly quoted and conservatively interpreted in the PoA-DD  | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | As per AMS-II.G./Version 05.0, the baseline scenario is prescribed. All the references and documents are checked and confirmed correctly quoted and conservatively interpreted.                                      |
| All relevant policies / regulations considered   | <input checked="" type="checkbox"/> Yes                                | As per AMS-II.G./Version 05.0, the   |



|   |  |  |
|---|--|--|
| are listed in the PoA-DD  | <input type="checkbox"/> No  | baseline scenario is prescribed. All the relevant policies/regulations listed in the PoA-DD have been checked and confirmed. |
| Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | As per AMS-II.G./Version 05.0, the baseline scenario is prescribed.  |
| The baseline scenario selection is appropriate and determined according to the methodology  | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | As per AMS-II.G./Version 05.0, the baseline scenario is prescribed.  |
| The approved methodology used is applicable to the identified baseline scenario   | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | As per AMS-II.G./Version 05.0, the baseline scenario is prescribed.  |

The approved baseline methodology has been correctly applied to identify a realistic and credible baseline scenario, and the identified baseline scenario most reasonably represents what would occur in the absence of the proposed CDM PoA.

All the assumption and data used by the project participants are listed in the PoA-DD and/or supporting documents. All documentation relevant for establishing the baseline scenario are correctly quoted and interpreted in the PoA-DD. Assumptions and data used in the identification of the baseline scenario are justified appropriately supported by evidence and can be deemed reasonable. Relevant national and/or sectoral policies and circumstances are considered and listed in the PoA-DD.

### 3.7 Additionality

#### 3.7.1 Prior CDM consideration

According to Clause 29 of Clean Development Mechanism Project Standard (Version 06.0, 11<sup>th</sup> April 2014) /5.2/ and Clause 11 of Clean Development Mechanism Project Cycle Procedure (Version 06.0, 11<sup>th</sup> April 2014) /5.3/, requirements on demonstration of prior consideration of the CDM do not apply to CDM PoAs. Thus no assessment is required.

#### 3.7.2 Additionality of the PoA

According to the VVS Clause 195, the additionality of the PoA as a whole shall be assessed in accordance with the standard *“Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”* (Version 03.0, EB 74 Annex 05) /10.2/:

*“Additionality shall be demonstrated by establishing that in the absence of CDM, none of the implemented CPAs would occur.”*

As per the PoA-DD Part I, Section B.1, the PP stated that *“as neither law nor regulation obligates the distribution or use of ICS in Togo, this proposed PoA is a voluntary coordinated action”*. As per on-site interview with representative of the DNA of Togo /iv/, it is confirmed that

there is no mandatory law/regulation or governmental campaign to adopt the ICSs by households in Togo.

Moreover, the PP also stated that *“if the PoA is implementing a voluntary coordinated action, it would not be implemented in the absence of the PoA”*. As validated in section 3.7.3 below, the validation team has confirmed that there is no incentive other than CER revenues which enable the CME of the PoA and IE(s) of the CPAs to implement the project activities and sell ICSs at an affordable price to local households.

Thus the validation team confirms that the proposed PoA is a voluntary action and in the absence of the CDM support, the proposed voluntary measure would not be implemented. The additionality of the PoA as a whole is therefore clearly demonstrated.

### 3.7.3 Approach for demonstrating additionality of CPAs under the PoA

As per Part II, section B.5 of PoA-DD, the additionality of a CPA is assessed and demonstrated according to standard *“Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”* (Version 03.0, EB 74 Annex 05),

| Requirements for demonstrating additionality  | Assessment of the compliance of the requirements  |
|---|---|
| <i>“Additionality shall be demonstrated by establishing that in the absence of CDM, none of the implemented CPAs would occur”</i>   | The validation team confirms that there is no incentive other than CER revenues which enable the CME of the PoA and IE(s) of the CPAs to implement the project activities and sell ICSs at an affordable price to local households.   |
| <i>“PoAs that consist of one or more small-scale projects as CPAs shall include eligibility criteria derived from all the relevant requirements of the “Guidelines for demonstrating additionality of small-scale project activities”</i> | <p>The validation team confirms that the <i>“Guidelines on the demonstration of additionality of small-scale project activities”</i> (Version 09) /8.1/ is applicable to demonstrate the additionality of the PoA.</p> <p>As per Part I, section B.1 and B.2 of the PoA-DD /1.2/, the PP chooses to demonstrate the additionality of the CPAs according to Option (c) of the positive list of the <i>“Guidelines on the demonstration of additionality of small-scale project activities”</i> (Version 09) /8.1/, i.e. <i>“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”</i>.</p> |
| <i>“The CME shall demonstrate that compliance with the additionality-related eligibility criteria set in the PoA design document will ensure that</i>   | According to Clause 155 of Clean Development Mechanism Project Standard (Version 06.0, 11 <sup>th</sup> April 2014) /5.2/, <i>“The coordinating/managing entity shall consider that a full additionality assessment is not</i>  |



|   |   |
|---|---|
| <i>all the relevant additionality-related guidelines, tools or any requirements embedded in the methodologies are met</i> | <i>required in the context of CPA. Instead, the confirmation of additionality for CPAs should be conducted by means of the eligibility criteria". Please refer to the assessment below.</i> |
|---|---|

### **Additionality demonstrated in the real-case CPA-DD**

As per the Section D.5 of 1<sup>st</sup> real-case CPA-DD, the assessment of additionality of the CPA refers to discussion of eligibility criteria (i.e. criterion #5: *"In reference to the "Guidelines on the demonstration of additionality of small-scale project activities", the annual energy savings generated by each ICS sold under the framework of a CPA included under this PoA shall not exceed 5% of the small-scale CDM thresholds (i.e. 5% of 180 GWh<sub>th</sub> = 9,000 MWh<sub>th</sub>).".*

As per discussion in section 3.4 above, the additionality of CPAs is included in the eligibility criteria for inclusion of a SSC-CPA in the PoA in Part II, section B.5 of the PoA-DD /1.2/ and section D.5 of the real-case CPA-DD /2.2/.

| <b>Eligibility conditions</b>  | <b>Compliance rationale in the PoA-DD</b>   | <b>Validation Opinion</b>  |
|--|---|--|
| 5. <i>"In reference to the "Guidelines on the demonstration of additionality of small-scale project activities", the annual energy savings generated by each ICS sold under the framework of a CPA included under this PoA shall not exceed 5% of the small-scale CDM thresholds (i.e. 5% of 180 GWh<sub>th</sub> = 9,000 MWh<sub>th</sub>).".</i> | <i>"In each SSC-CPA-DD, it shall be demonstrated that the nominal energy savings of each ICS is lower than 5% of the applicable limit for Type II small scale CDM project activities i.e. 5% of 180 GWh<sub>th</sub> = 9,000 MWh<sub>th</sub>."</i> | <p>As per the PoA-DD /1.2/, the PP chooses to demonstrate the additionality of the CPAs according to Option (c) of the positive list of the <i>"Guidelines on the demonstration of additionality of small-scale project activities"</i> (Version 09) /8.1/. Thus it is confirmed to be a reasonable criterion.</p> <p>For the 1<sup>st</sup> CPA, the calculation of annual energy saving per ICS is checked. According to the report <i>"Investigation of domestic energy consumption in Togo"</i> by CRISTO dated 2007 /42/, it is confirmed that the Asuto stove (same model as the one distributed under the PoA) is reducing from 50 to 60% the consumption in terms of quantity compared to the consumption of traditional iron charcoal stove so called Malagasy Stove. It is considered conservative to use of lower end of the range (i.e. 50%) in the calculation. Thus the annual energy saving per ICS is confirmed to be <math>50\% * M_{\text{woody\_biomass,app}} * NCV = 50\% * 5.18 * 4.167 = 10.8 \text{ MWh/y}</math>, which is lower than 5% of the small-scale CDM thresholds (i.e. 5% of 180 GWh<sub>th</sub> = 9,000 MWh<sub>th</sub>). Thus this criterion is fulfilled.</p> |

Therefore, the validation team confirms that the 1<sup>st</sup> real-case CPA is automatically additional because it falls into the positive list of technologies and project activity types as per the “Guidelines on the demonstration of additionality of small-scale project activities” (Version 09) /8.1/ and no more barrier analysis is required to be carried out.

### 3.8 GHG Emission Reductions from a typical CPA

The calculations of GHG emission reductions are transparently documented with assumptions regarding the forecasted emission reductions.

According to the selected methodology AMS-II.G./Version 05.0, the emission reductions ( $ER_y$ ) by a CPA under the PoA during the crediting period are expressed as follows:

$$ER_y = B_{y,savings} * f_{NRB,y} * NCV_{biomass} * EF_{projected\_fossilfuel} * N_{y,i}$$

where:

|                              |  |
|------------------------------|--|
| $ER_y$                       | Emission reductions during the year $y$ in tCO <sub>2</sub> e  |
| $B_{y,savings}$              | Quantity of woody biomass that is saved in tonnes per device   |
| $f_{NRB,y}$                  | Fraction of woody biomass saved by the project activity in year $y$ that can be established as non-renewable biomass using survey methods or government data or default country specific fraction of non-renewable woody biomass ( $f_{NRB}$ ) values available on the CDM website |
| $NCV_{biomass}$              | Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne, wet basis)   |
| $EF_{projected\_fossilfuel}$ | Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 81.6 tCO <sub>2</sub> /TJ   |
| $N_{y,i}$                    | Number of project devices of type $i$ operating in year $y$  |

The above calculation of emission reductions ( $ER_y$ ) has been demonstrated in Part II, section B.6.1 of the PoA-DD /1.2/ and section D.6.1 of the real-case CPA-DD /2.2/. The validation team assessed the *ex-ante* estimation of the applied parameters as below,

#### 1) $B_{y,savings}$ :

As per the AMS-II.G./Version 05.0, three options are given for the calculation of  $B_{y,savings}$ . The choice between option 1, 2 or 3 of the methodology should be done at the time of CPA inclusion according to the applied methodology. For the 1<sup>st</sup> CPA inclusion, option 2 is selected.

Option 1:

$$B_{y,savings} = B_{old} - B_{y,new,KPT}$$

where:

|                 |  |
|-----------------|--|
| $B_{y,savings}$ | Quantity of woody biomass that is saved in tonnes per device   |
| $B_{old}$       | Quantity of woody biomass used in the absence of the project activity in tonnes per device.<br><br>Please refer to assessment in Option 2.   |
| $B_{y,new,KPT}$ | Annual quantity of woody biomass used in year y in tonnes per device, measured as per the Kitchen Performance Test (KPT) protocol. The KPT should be carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the KPT procedures specified by the Partnership for Clean Indoor Air (PCIA) <a href="http://www.pciaonline.org/node/1049">http://www.pciaonline.org/node/1049</a> ) |

Option 2:

$$B_{y,savings} = B_{old} * (1 - \frac{\eta_{old}}{\eta_{new,y}})$$

$$B_{y,savings} = B_{y,new,survey} * (\frac{\eta_{new,y}}{\eta_{old}} - 1)$$

where,

|                 |  |
|-----------------|--|
| $B_{y,savings}$ | Quantity of woody biomass that is saved in tonnes per device   |
| $B_{old}$       | <p>Quantity of woody biomass used in the absence of the project activity in tonnes per device.</p> <p>According to AMS-II.G./Version 05, there are two options for the calculation of <math>B_{old}</math>. For the 1<sup>st</sup> real-case CPA, option (a) is chosen for the calculation, i.e.</p> <p><i>"(a) Calculated as the product of the number of devices multiplied by the estimated average annual consumption of woody biomass per device (tonnes/year). This may be derived from historical data or a survey of local usage".</i></p> <p>It is noted that the value of "<math>B_{old}</math>" here is per stove and the number of devices will be considered in the final calculation of the emission reductions (i.e. parameter <math>N_{y,i}</math>), thus the number of devices is not included in the calculation at this stage.</p> <p>In addition, according to para 26 (b) of the applied methodology AMS-II.G./Version 05, "<i>average fuel wood consumption of baseline stoves per year (<math>B_{residual,y}</math>) will be monitored and then excluded from <math>B_{old}</math></i>",</p> <p>Moreover, according to the applied methodology AMS-II.G./Version 05.0, a default factor of 0.95 (i.e. parameter <math>Leakage_{adj}</math>) would be applied to adjust <math>B_{old}</math></p> |

|                         |   |                         |  |                       |  |                         |  |                       |  |
|-------------------------|---|-------------------------|--|-----------------------|--|-------------------------|--|-----------------------|--|
|                         | <p>to account for leakages.</p> $B_{old} = (M_{woody\_biomass,app} - B_{residual,y}) * 0.95$ <p>Where,</p> <table border="1" data-bbox="443 506 1409 1978"> <tr> <td data-bbox="443 506 651 1192"> <math>M_{woody,biomass,app}</math> </td><td data-bbox="651 506 1409 1192"> <p>Average consumption of woody biomass per appliance (tonnes/year). The value is ex-ante determined at the time of including CPAs only for communities and small and medium enterprises target end users.</p> <p>In the case of household end users like the 1<sup>st</sup> CPA, it will be determined by multiplying the average number of people per household (<math>N_{p/u}</math>) with the baseline consumption per capita (<math>M_{woody,biomass,app,capita}</math>) as below:</p> <math display="block">M_{woody,biomass,app} = M_{woody\_biomass,app,capita} * N_{p/u}</math> <p>In this case, the value of <math>M_{woody\_biomass,app,capita}</math> will be ex-ante determined at the time of including CPAs and <math>N_{p/u}</math> will be a monitoring parameter.</p> <p>For the 1<sup>st</sup> CPA-DD, the value of <math>N_{p/u}</math> is estimated <i>ex-ante</i> as 4.2 for urban household based on the study conducted by the Ministry of Economic Development of Togo /29/.</p> </td></tr> <tr> <td data-bbox="443 1192 651 1978"> <math>B_{residual,y}</math> </td><td data-bbox="651 1192 1409 1978"> <p>Average fuel wood consumption of baseline stoves per device per year y (tonnes/year)</p> <p>It is determined as follows:</p> <math display="block">B_{residual,y} = M_{woody,biomass,app} \times p_{residual\_NRB,y}</math> <p>where:</p> <table border="1" data-bbox="662 1528 1398 1978"> <tr> <td data-bbox="662 1528 906 1682"> <math>M_{woody,biomass,app}</math> </td><td data-bbox="906 1528 1398 1682"> <p>Estimate of average annual consumption of woody biomass per appliance in baseline. <i>Please refer to assessment above.</i></p> </td></tr> <tr> <td data-bbox="662 1682 906 1978"> <math>p_{residual\_NRB,y}</math> </td><td data-bbox="906 1682 1398 1978"> <p>Proportion of residual use of woody biomass from non-renewable sources under the project activity in year y</p> <p>As per the 1<sup>st</sup> CPA-DD, the value is estimated <i>ex-ante</i> as 15%, which is based on a similar ICS project (UNFCCC Ref. No. 5482), which is</p> </td></tr> </table> </td></tr> </table> | $M_{woody,biomass,app}$ | <p>Average consumption of woody biomass per appliance (tonnes/year). The value is ex-ante determined at the time of including CPAs only for communities and small and medium enterprises target end users.</p> <p>In the case of household end users like the 1<sup>st</sup> CPA, it will be determined by multiplying the average number of people per household (<math>N_{p/u}</math>) with the baseline consumption per capita (<math>M_{woody,biomass,app,capita}</math>) as below:</p> $M_{woody,biomass,app} = M_{woody\_biomass,app,capita} * N_{p/u}$ <p>In this case, the value of <math>M_{woody\_biomass,app,capita}</math> will be ex-ante determined at the time of including CPAs and <math>N_{p/u}</math> will be a monitoring parameter.</p> <p>For the 1<sup>st</sup> CPA-DD, the value of <math>N_{p/u}</math> is estimated <i>ex-ante</i> as 4.2 for urban household based on the study conducted by the Ministry of Economic Development of Togo /29/.</p> | $B_{residual,y}$      | <p>Average fuel wood consumption of baseline stoves per device per year y (tonnes/year)</p> <p>It is determined as follows:</p> $B_{residual,y} = M_{woody,biomass,app} \times p_{residual\_NRB,y}$ <p>where:</p> <table border="1" data-bbox="662 1528 1398 1978"> <tr> <td data-bbox="662 1528 906 1682"> <math>M_{woody,biomass,app}</math> </td><td data-bbox="906 1528 1398 1682"> <p>Estimate of average annual consumption of woody biomass per appliance in baseline. <i>Please refer to assessment above.</i></p> </td></tr> <tr> <td data-bbox="662 1682 906 1978"> <math>p_{residual\_NRB,y}</math> </td><td data-bbox="906 1682 1398 1978"> <p>Proportion of residual use of woody biomass from non-renewable sources under the project activity in year y</p> <p>As per the 1<sup>st</sup> CPA-DD, the value is estimated <i>ex-ante</i> as 15%, which is based on a similar ICS project (UNFCCC Ref. No. 5482), which is</p> </td></tr> </table> | $M_{woody,biomass,app}$ | <p>Estimate of average annual consumption of woody biomass per appliance in baseline. <i>Please refer to assessment above.</i></p> | $p_{residual\_NRB,y}$ | <p>Proportion of residual use of woody biomass from non-renewable sources under the project activity in year y</p> <p>As per the 1<sup>st</sup> CPA-DD, the value is estimated <i>ex-ante</i> as 15%, which is based on a similar ICS project (UNFCCC Ref. No. 5482), which is</p> |
| $M_{woody,biomass,app}$ | <p>Average consumption of woody biomass per appliance (tonnes/year). The value is ex-ante determined at the time of including CPAs only for communities and small and medium enterprises target end users.</p> <p>In the case of household end users like the 1<sup>st</sup> CPA, it will be determined by multiplying the average number of people per household (<math>N_{p/u}</math>) with the baseline consumption per capita (<math>M_{woody,biomass,app,capita}</math>) as below:</p> $M_{woody,biomass,app} = M_{woody\_biomass,app,capita} * N_{p/u}$ <p>In this case, the value of <math>M_{woody\_biomass,app,capita}</math> will be ex-ante determined at the time of including CPAs and <math>N_{p/u}</math> will be a monitoring parameter.</p> <p>For the 1<sup>st</sup> CPA-DD, the value of <math>N_{p/u}</math> is estimated <i>ex-ante</i> as 4.2 for urban household based on the study conducted by the Ministry of Economic Development of Togo /29/.</p>  |                         |  |                       |  |                         |  |                       |  |
| $B_{residual,y}$        | <p>Average fuel wood consumption of baseline stoves per device per year y (tonnes/year)</p> <p>It is determined as follows:</p> $B_{residual,y} = M_{woody,biomass,app} \times p_{residual\_NRB,y}$ <p>where:</p> <table border="1" data-bbox="662 1528 1398 1978"> <tr> <td data-bbox="662 1528 906 1682"> <math>M_{woody,biomass,app}</math> </td><td data-bbox="906 1528 1398 1682"> <p>Estimate of average annual consumption of woody biomass per appliance in baseline. <i>Please refer to assessment above.</i></p> </td></tr> <tr> <td data-bbox="662 1682 906 1978"> <math>p_{residual\_NRB,y}</math> </td><td data-bbox="906 1682 1398 1978"> <p>Proportion of residual use of woody biomass from non-renewable sources under the project activity in year y</p> <p>As per the 1<sup>st</sup> CPA-DD, the value is estimated <i>ex-ante</i> as 15%, which is based on a similar ICS project (UNFCCC Ref. No. 5482), which is</p> </td></tr> </table>  | $M_{woody,biomass,app}$ | <p>Estimate of average annual consumption of woody biomass per appliance in baseline. <i>Please refer to assessment above.</i></p>   | $p_{residual\_NRB,y}$ | <p>Proportion of residual use of woody biomass from non-renewable sources under the project activity in year y</p> <p>As per the 1<sup>st</sup> CPA-DD, the value is estimated <i>ex-ante</i> as 15%, which is based on a similar ICS project (UNFCCC Ref. No. 5482), which is</p>   |                         |  |                       |  |
| $M_{woody,biomass,app}$ | <p>Estimate of average annual consumption of woody biomass per appliance in baseline. <i>Please refer to assessment above.</i></p>  |                         |  |                       |  |                         |  |                       |  |
| $p_{residual\_NRB,y}$   | <p>Proportion of residual use of woody biomass from non-renewable sources under the project activity in year y</p> <p>As per the 1<sup>st</sup> CPA-DD, the value is estimated <i>ex-ante</i> as 15%, which is based on a similar ICS project (UNFCCC Ref. No. 5482), which is</p>  |                         |  |                       |  |                         |  |                       |  |

|                |  |  |   |
|----------------|--|--|---|
|                |  |  | confirmed in accordance with EB 69 Annex 6, i.e. “the expected value of the parameter.....should be determined using the project planner’s knowledge and experience”. The registered PDD of the mentioned reference project 5482 is checked. An ex-ante value of 11.83% from a registered Project /41/ is referenced in the PoA-DD. It is considered that the registered Project (5482) could be used as a similar study for determining the value of the parameter “proportion of residual use of woody biomass from non-renewable sources under the project activity in year y” and the applied value of 15% is also conservative in terms of ER calculation. |
| $\eta_{old}$   | <p>1. Efficiency of the device being replaced (fraction), measured using representative sampling methods or based on referenced literature values, use weighted average values if more than one type of device is being replaced.</p> <p>2. A default value of 0.10 may be optionally used if the replaced device is a three stone fire, or a conventional device with no improved combustion air supply or flue gas ventilation, i.e. without a grate or a chimney; for other types of systems a default value of 0.2 may be optionally used.</p> <p>The value is determined at the time of including CPAs.</p> |  |   |
| $\eta_{new,y}$ | Efficiency of the device being deployed as part of the project activity (fraction), as determined annually using the Water Boiling Test (WBT) protocol carried out in accordance with national standards (if available) or international standards or guidelines. Use weighted average values if more than one type of system is being introduced by the project activity.   |  |   |

Option 3:

$$B_{y,savings} = B_{old} * (1 - \frac{SC_{new,y}}{SC_{old}})$$

where:

|                 |   |
|-----------------|---|
| $B_{y,savings}$ | Quantity of woody biomass that is saved in tonnes per device                                |
| $B_{old}$       | Quantity of woody biomass used in the absence of the project activity in tonnes per device. |

|              |  |
|--------------|--|
|              | Please refer to assessment in Option 2.  |
| $SC_{old}$   | Specific fuel consumption or fuel consumption rate of the baseline device i.e. fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour, respectively. Use weighted average values if more than one device is being replaced  |
| $SC_{new,y}$ | Specific fuel consumption or the fuel consumption rate in year y of the device deployed as part of the project i.e. fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour, respectively. Use weighted average values if more than one type of system is being introduced by the project activity |

2)  $f_{NRB,y}$ :

According to the AMS-II.G./Version 05.0,

$$f_{NRB} = \frac{NRB}{NRB + DRB}$$

where:

|       |  |
|-------|--|
| $DRB$ | <p>Woody biomass that is deemed renewable if one of the following two conditions is satisfied:</p> <p>(a) The woody biomass originates from land areas that are forests where:</p> <p>(i) The land area remains a forest;</p> <p>(ii) Sustainable management practices are undertaken on these land areas to ensure, in particular, that the level of carbon stocks on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); and</p> <p>(iii) Any national or regional forestry and nature conservation regulations are complied with;</p> <p>(b) The biomass is woody biomass and originates from non-forest areas (e.g. croplands, grasslands) where:</p> <p>(i) The land area remains as non-forest or is reverted to forest;</p> <p>(ii) Sustainable management practices are undertaken on these land areas to ensure that the level of carbon stocks on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); and</p> <p>(iii) Any national or regional forestry, agriculture and nature conservation regulations are complied with.</p> |
| $NRB$ | <p>Non-renewable woody biomass (<math>NRB</math>) is the quantity of woody biomass used in the absence of the project activity (<math>B_{old}</math>) minus the DRB component.</p> <p>According to the two public documents evidences /46/ /47/, there is a trend showing an increase in distance travelled to look for charcoal by users and an increasing trend in charcoal price. Thus, the indicators (a) and (c) in Clause 17 of</p>  |

|  |  |
|--|--|
|  | the applied methodology AMS-II.G./Version 05 are shown to exist. Non-renewable woody biomass ( $NRB$ ) is therefore confirmed to be the quantity of woody biomass used in the absence of the project activity ( $B_{old}$ ) minus the DRB component. |
|--|--|

According to the applied methodology AMS-II.G./Version 05, the value of  $f_{NRB,y}$  could be determined “*using survey methods or government data or approved default country specific fraction of non-renewable woody biomass ( $f_{NRB}$ ) values available on the CDM website*”.

The information of the value of  $f_{NRB,y}$  for Togo (i.e. 97%) is referenced from the default values of fraction of non-renewable biomass listed on the UNFCCC website /39/, and thus confirmed traceable and valid.

### 3) $NCV_{biomass}$ :

The IPCC default value of 0.015 TJ/tonne is adopted according to the applied methodology AMS-II.G./Version 05.0 for all the CPAs under the PoA, which is confirmed valid.

### 4) $EF_{projected\_fossilfuel}$ :

As per the applied methodology AMS-II.G./Version 05.0, the default value of 81.6 tCO<sub>2</sub>/TJ is applied for *ex-ante* calculation.

### 5) $N_{y,i}$ :

The number of operating stoves during the current monitoring campaign ( $N_{y,i}$ ) will be determined from the proportion of stoves still operating ( $p_{op\ stoves,y}$ ) multiplied by the population of stoves considered at the beginning of the monitoring campaign ( $N$ ), i.e,  $N_{y,i} = N * p_{op\ stoves,y}$ . The proportion of stoves still operating ( $p_{op\ stoves,y}$ ) is estimated ex-ante at 95% and will be monitored ex-post.

### Leakage ( $L_y$ ):

As discussed above, a default factor of 0.95 (i.e. parameter  $Leakage_{adj}$ ) could be applied to adjust  $B_{old}$  to account for leakages, according to the applied methodology AMS-II.G./Version 05.0.

The emission reductions (ER) spreadsheet for the calculation of the estimated CER was checked by the validation team, and confirmed valid and in accordance with the applied methodology AMS-II.G./Version 05.0. All the applied assumptions are based on the most recent data available at the time of submission of the PoA-DD & the specific CPA-DD to the DOE for validation (i.e. GSP on 13<sup>th</sup> March 2013).

Table 4: The summary of GHG emission reduction

|  |  |   |
|--|--|---|
| All assumptions made for estimating GHG are listed in the PoA-DD, CPA-DD | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | As per PoA-DD section B.6.3, and CPA-DD section D.6.3, assumptions were made for estimated GHG emission reductions. |
| All data used by project participants are                                | <input checked="" type="checkbox"/> Yes                                | As per PoA-DD section B.6.3, and CPA-   |



|  |  |   |
|--|--|---|
| listed in the PoA-DD, CPA-DD   | <input type="checkbox"/> No  | DD section D.6.3.   |
| Their references and sources are also listed in the PoA-DD, CPA-DD   | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | As per PoA-DD section B.6.3, and CPA-DD section D.6.3.  |
| Formulas, parameters, values are complete, accurate, transparent and conservative  | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | The calculations applied in the PoA-DD, CPA-DD do follow the requirements in the approved methodology AMS-II.G./Version 05.0. The formulas, parameters and values are complete, accurate, transparent and conservative.                           |
| All the references and documents used are correctly quoted and conservatively interpreted in the PoA-DD, CPA-DD                      | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | The calculations applied in the PoA-DD, CPA-DD do follow the requirements in the approved methodology AMS-II.G./Version 05.0. All the references and documents used are correctly quoted and conservatively interpreted.                          |
| Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | The calculations applied in the PoA-DD, CPA-DD follow the requirements in the approved methodology AMS-II.G./Version 05.0.  |
| All the emissions of baseline emissions can be replicated using information provided in the PoA-DD, CPA-DD                           | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | The calculations applied in the PoA-DD do follow the requirements in the approved methodology AMS-II.G./Version 05.0. All the emissions of baseline emissions can be replicated using information provided in the PoA-DD and the specific CPA-DD. |

Based on the calculations and results presented in the sections above the implementation of the project activity will result in an average ex-ante estimation of emission reduction conservatively calculated to be 48,001 tCO<sub>2</sub>e per year for the selected crediting period.

All assumptions and data used by the project participants are listed in the PoA-DD and the specific CPA-DD, including their references and sources. All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PoA-DD and the specific CPA-DD. All values used in the PoA-DD and the specific CPA-DD are considered reasonable and conservative in the context of the proposed CDM project activity. The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. All estimates of the baseline, project and leakage emissions can be replicated using the data and parameter values provided in the PoA-DD and the specific CPA-DD.

### 3.9 Monitoring Plan

According to the monitoring plan in Part II, section B.7.2 of PoA-DD, the CME will keep the electronic records of data as well as the original copies of the sale agreements of ICSs. For each CPA, all parameters described in Part II, section B.7.1 of the PoA-DD will be monitored

according to the monitoring plan in Part II, section B.7.2 of the PoA-DD. Moreover, a statistically sound sampling method/procedure will be used for verification of the amount of emission reductions achieved by CPAs under the PoA. The detailed information on sampling is described in Part II, section B.7.2 of the PoA-DD.

By reviewing the detailed descriptions of the monitoring plan in Part II, section B.7.2 of the PoA-DD and section D.7.2 of the CPA-DD, the validation team considers that the monitoring plan meets the requirements of the applied monitoring methodology AMS-II.G./Version 05.0, as well as the standard “*Sampling and surveys for CDM project activities and programme of activities*” (Version 04.1, EB 74 Annex 6) and the Guideline “sampling and surveys for CDM project activities and programme of activities” (Version 03.0, EB 75 Annex 08). Sample size calculation is described in the monitoring plan of the CPA-DD and the sample size calculation spreadsheet /60/ is also provided. *Please refer to detailed assessment below.*

### 3.9.1 Parameters determined *ex-ante*

The parameters for determining the GHG emission reductions for a typical CPA are described in the PoA-DD Part II, section B.7.1 and CPA-DD section D.7.1. The validation team checked the values applied for calculation of the estimated CER are complete and transparent. Please refer to Section 3.8 above for detailed assessment. The list of parameters is summarised as below:

| Parameter                              | Description   | Applied value                                       | Validation opinion   |
|--|---|---|--|
| $M_{\text{woody\_biomass,app,capita}}$ | Estimate of average annual consumption of woody biomass per capita member of an household in baseline | 1.234<br>tons/year/capita<br>(for urban households) | For the 1 <sup>st</sup> CPA targeted urban household users relying on charcoal for cooking, it is confirmed from the Energy Information System of Togo (SIE-Togo) 2007 Report issued by the Ministry of Energy of Togo /28/<br><br>For the differentiation of urban and rural households, only households living in cities are considered as urban. The other households are all considered as rural. Currently, there are 36 cities which are prefectures and sub-prefectures according to the administration division /48/. It will be updated as per future |

|                              |  |                            |  |
|------------------------------|--|----------------------------|--|
|                              |  |                            | administration adjustment if any.  |
| $\eta_{old}$                 | Efficiency of the device being replaced  | 0.155                      | Estimated based on the Water Boiling Test (WBT) conducted by Laboratory of Solar Energy of University of Lomé (LES/UL) /23/ and the public reference CRISTO report /42/. Please refer to section 3.3 above for details |
| $f_{NRB,y}$                  | Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass | 97%                        | Confirmed from default values of fraction of non-renewable biomass listed on the UNFCCC website /39/   |
| $NCV_{biomass}$              | Net calorific value of the non-renewable woody biomass that is substituted   | 0.015 TJ/tonne             | Confirmed from the applied methodology AMS-II.G./Version 05.0  |
| $EF_{projected\_fossilfuel}$ | Emission factor for the substitution of non-renewable woody biomass by similar consumers                           | 81.6 tCO <sub>2</sub> /TJ  |  |
| $m_{biomass} / m_{charcoal}$ | Conversion factor wood/charcoal  | 6.6 kg biomass/kg charcoal | Confirmed from reference /28/ /30/ /33/  |
| $Leakage_{adj}$              | Net to gross adjustment factor to account for leakages   | 0.95                       | Confirmed from the applied methodology AMS-II.G./Version 05.0  |

### 3.9.2 Parameters monitored *ex-post*

According to the monitoring methodology AMS-II.G./Version 05.0, the parameters are mainly related to (i) efficiency of the appliances (ICSs), (ii) the operating situation of ICSs, and (iii) leakages. By reviewing the PoA-DD Part II, section B.7.2, the monitoring parameters include (i) and (ii). As confirmed in the above assessment, leakage is not monitored and a default adjustment factor (i.e. 0.95) is applied, which is in accordance with the applied methodology AMS-II.G./Version 05.0.

| Parameter | Description   | Monitoring frequency |
|-----------|---|----------------------|
| $N_{y,i}$ | Number of project devices of type <i>i</i> operating in year <i>y</i> | Annually             |

|                    |  |          |
|--------------------|--|----------|
| $B_{y,new,KPT}$    | Annual quantity of woody biomass used in year y in tonnes per device, measured as per the Kitchen Performance Test (KPT) protocol<br><br><i>&gt;&gt; Monitored only if option 1 of methodology AMS-II.G version 05.0 is chosen.</i>  | Annually |
| $B_{y,new,survey}$ | Annual quantity of woody biomass used during the project activity in tonnes per device<br><br><i>&gt;&gt; Monitored only if option 2 of methodology AMS-II.G version 05.0 is chosen.</i>   | Annually |
| $\eta_{new,y}$     | Efficiency of the device being deployed as part of the project activity in year y<br><br><i>&gt;&gt; Monitored only if option 2 of methodology AMS-II.G version 05.0 is chosen.</i>  | Annually |
| $SC_{new,y}$       | Specific fuel consumption or fuel consumption rate in year y of the device(s) deployed as part of the project that is fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour respectively<br><br><i>&gt;&gt; Monitored only if option 3 of methodology AMS-II.G version 05.0 is chosen.</i> | Annually |
| $B_{residual,y}$   | Average fuel wood consumption of baseline stoves per device per year y (tonnes/year)   | Annually |
| $N_{p/u}$          | Average number of people per households in the CPA<br><br><i>&gt;&gt; Monitored only if option 2 of methodology AMS-II.G version 05.0 is chosen.</i>   | Annually |

According to Clause 22 of the applied methodology AMS-II.G./Version 05.0, “Monitoring shall consist of checking of all devices or a representative sample thereof, at least once every two years (biennial) to determine if they are still operating; those devices that have been replaced by an equivalent in-service device can be counted as operating”. According to Part II, section B.7.2 of the PoA-DD, it states that all the monitoring parameters “will be monitored at least annually on a representative sample considering three types of end users”. Please refer to the below section for the assessment of sampling plan.

### 3.9.3 Management system and quality assurance

The monitoring plan for a typical CPA is described in the PoA-DD Part II, section B.7.2. According to the PoA-DD and CPA-DD, the monitoring plan for each CPA outlines the followings:-

- **Sampling design:** The sampling plan is provided in the PoA-DD. Please refer to the detailed assessment in the section 3.9.3.1 below.
- **Monitoring organization:** The CME (i.e. Man and Man Enterprise) will be responsible for monitoring. A monitoring team will be established prior to the start of the crediting period. Training will be provided to all the monitoring staff as well as CPA implementer (if applicable) before the commencement of monitoring works. Moreover, the necessary competence for personnel involved in CPA inclusion is also described. Thus the validation team confirms that the CME' ability to implement the described monitoring plan could be ensured.
- **Monitoring equipment:** It is confirmed that the monitoring equipment will be based on the WBT (Water Boiling Test), the KPT (Kitchen Performance Test) or the CCT (Control Cooking Test) protocol, respectively, depending on the option chosen to calculate the quantity of woody biomass that is saved in tonnes per device.

The validation team confirms that the monitoring plan for a CPA is in accordance with the applied monitoring methodology AMS-II.G./Version 05.0 and feasible within the project design.

### 3.9.3.1 Sampling plan

Sampling approach would be used to verify each CPA. According to standard “*Sampling and surveys for CDM project activities and programme of activities*” (Version 04.1, EB 74 Annex 6), “*CDM PDDs or CDM Programme of Activities Design Documents (CDM-PoA-DDs, CDM-CPA-DDs) utilizing sampling for the determination of parameter values for calculating emission reductions shall include a sampling plan with a description of the sampling approach, important assumptions, and justification for the selection of the chosen approach*”. A detailed sampling plan has been provided in Part II, section B.7.2 of the PoA-DD as well as Section D.7.2 of the 1<sup>st</sup> real-case CPA-DD, which basically follows the outline for a sampling plan as recommended in the standard “*Sampling and surveys for CDM project activities and programme of activities*” (Version 04.1, EB 74 Annex 6):

- ***Sampling Design***
  - **Objectives and reliability requirement:** The objective of the sampling is to determine the value of the following monitoring parameters during the monitoring period with their associated confidence/precision level, i.e. 90/10 for annual sampling separately in each CPA and 95/10 for annual sampling across CPAs of the PoA:

| Parameter       | Description   |
|-----------------|---|
| $N_{y,i}$       | Number of project devices of type $i$ operating in year $y$   |
| $B_{y,new,KPT}$ | Annual quantity of woody biomass used in year $y$ in tonnes per device, measured as per the Kitchen Performance Test (KPT) protocol |

|                    |   |
|--------------------|---|
|                    | >> Monitored only if option 1 of methodology AMS-II.G version 05.0 is chosen.   |
| $B_{y,new,survey}$ | Annual quantity of woody biomass used during the project activity in tonnes per device<br><br>>> Monitored only if option 2 of methodology AMS-II.G version 05.0 is chosen.   |
| $\eta_{new,y}$     | Efficiency of the device being deployed as part of the project activity in year y<br><br>>> Monitored only if option 2 of methodology AMS-II.G version 05.0 is chosen.  |
| $SC_{new,y}$       | Specific fuel consumption or fuel consumption rate in year y of the device(s) deployed as part of the project that is fuel consumption per quantity of item/s processed (e.g. food cooked) or fuel consumption per hour respectively<br><br>>> Monitored only if option 3 of methodology AMS-II.G version 05.0 is chosen. |
| $B_{residual,y}$   | Average fuel wood consumption of baseline stoves per device per year y  |
| $N_{p/u}$          | Average number of people per households in the CPA<br><br>>> Monitored only if option 2 of methodology AMS-II.G version 05.0 is chosen.   |

Moreover, as described in the PoA-DD,  $N_{y,i}$  and  $B_{residual,y}$  are not directly monitored. The two parameters  $p_{op\ stoves,y}$  and  $p_{residual\_NRB,y}$  are monitored in order to determine  $N_{y,i}$  and  $B_{residual,y}$ , which have been reflected in the assessment of the two parameters  $N_{y,i}$  and  $B_{residual,y}$  in section 3.8 above.

- Target population and sampling frame: The target population for the monitoring parameters is defined as the locations where the systems are deployed, i.e. the participating users. The sampling frame is the combined population of all stoves sold under the specific CPAs targeted by the monitoring. And a single population will gather only same type of target end-users and using same size/type/model of ICS (with same technical specification: power output, thermal efficiency, durability, size, design of the stove and fuel used). In the case of household users from rural or urban, one population of stoves is considered as homogeneous only if it gathers only ICS owned by either rural or urban households.
- Sampling method: The sampling method is clearly presented as simple random sampling. Moreover, sampling may be conducted for each CPA, or carried out across CPAs which adopt the same type of ICS (same specifications) and are within the same boundary. Since the monitored parameters, which require sampling, would not vary greatly among

different CPAs due to the similar cooking habits shared by the households in Togo, the validation team confirms that usage of ICSs among such kind of CPAs are homogeneous, and hence sampling across these CPAs will not affect the precision/confidence of the final results, and thus is considered acceptable and valid.

- Sample size and desired precision/expected variance: According to the standard “Sampling and surveys for CDM project activities and programme of activities” (Version 04.1, EB 74 Annex 6), the sample size calculation is dependent on:
  - (a) “the type of parameter of interest, i.e. mean value or proportion value”;
  - (b) “the target value, i.e. the expected value of the parameter”;
  - (c) “Expected variance (or standard deviation) for that measure in the sample, based on results from similar studies including other similar CDM projects or previous monitoring periods, pilot studies, or from the project planner’s own knowledge of the data”.

The equation for calculation of sample size for proportion value (e.g.  $p_{op\ stoves,y}$  and  $p_{residual\_NRB,y}$ ) as well as *ex-ante* calculation of sample size is based on the Guideline “sampling and surveys for CDM project activities and programme of activities” (Version 03.0, EB 75 Annex 08) and thus confirmed traceable and valid.

As per the PoA-DD, the sampling could be conducted using the following two options, i.e.:

- 1) annual sampling per each CPA (90/10 confidence/precision);
- 2) annual sampling across CPAs which deploy the same ICS type (95/10 confidence/precision);

#### **>> Calculation of $p_{op\ stoves,y}$ and $p_{residual\_NRB,y}$ (or their reverse):**

According to the sampling standards (Version 04.1, EB 74 Annex 6), “if the parameter of interest is a proportion, or a percentage, then expected variance can be derived directly from the target value”, thus for the monitoring parameters  $p_{op\ stoves,y}$  and  $p_{residual\_NRB,y}$ , the calculation of the sample size correctly follows the formula in the Guideline “sampling and surveys for CDM project activities and programme of activities” (Version 03.0, EB 75 Annex 08), i.e.

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

where,

|                |   |
|----------------|---|
| $N_y$          | <p>Size of the population of stoves considered for the monitoring session</p> <p>A value of 16,666 is applied for <i>ex-ante</i> calculation, which is calculated from the energy savings per stove per year (i.e. 10.8 kWh<sub>th</sub>) and the SSC threshold of 180 GWh<sub>th</sub>. The actual value will be monitored <i>ex-post</i>. Thus it is considered acceptable and valid.</p> |
| $t_{\alpha/2}$ | Student’s t Critical Values   |



|  |   |
|--|---|
|  | It is confirmed that this value is equal to 1.96 in the case when 95% confidence interval and a 10% margin of error are required and value, and equal to 1.645 in the case when 90% confidence interval and a 10% margin of error are required. |
|--|---|

Referring to the assessment in section 3.8 above, for the 1<sup>st</sup> monitoring period of the 1<sup>st</sup> real-case CPA, the values of the monitoring parameters  $p_{op\ stoves,y}$  and  $p_{residual\_NRB,y}$  are estimated *ex-ante* as 0.95 and 0.15, respectively, which apply to both sampling options and have been confirmed traceable, valid and conservative.

Moreover, according to the standard “*sampling and surveys for CDM project activities and programme of activities*” (Version 04.1, EB 74 Annex 6), para 11 (a), “*a proportion can describe either of the two possible scenarios of the success rate or the failure rate – for example (i) cook stove still operational or (ii) cook stove no longer operational. Project proponents may use the larger of the two proportions in the sample size calculation, that is  $p$  or  $(1-p)$ , in any of the monitoring periods during the crediting period without having to revise the monitoring plan*”. Thus the PP can monitor either the identified proportions or their reverse:

- $p_{op\ stoves,y}$  or its reverse  $1-p_{op\ stoves,y}$
- $p_{residual\_NRB,y}$  or its reverse  $1-p_{residual\_NRB,y}$

#### >> **For the monitoring of $N_{p/u}$ :**

The monitoring parameters  $N_{p/u}$ , which is a mean value parameter, the calculation of the sample size correctly follows the formula in the Guideline “sampling and surveys for CDM project activities and programme of activities” (Version 03.0, EB 75 Annex 08), i.e.

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

where,

|                |  |
|----------------|--|
| $N$            | Number of households having received a stove   |
| $V$            | $V = \left( \frac{\text{standard deviation}}{\text{mean}} \right)^2$   |
| $t_{\alpha/2}$ | Student's t Critical Values<br><br>It is confirmed that this value is equal to 1.96 in the case when 95% confidence interval and a 10% margin of error are required and value, and equal to 1.645 in the case when 90% confidence interval and a 10% margin of error are required. |

Referring to the assessment in section 3.8 above, for the 1<sup>st</sup> monitoring period of the 1<sup>st</sup> real-case CPA, the values of the monitoring parameter  $N_{p/u}$  is estimated *ex-ante* as 4.2,

which applies to both sampling options and have been confirmed traceable, valid and conservative.

In addition, an *ex-ante* rate of 20% is applied for oversampling in the calculation of sample size, which is confirmed to be conservative and could cope with possible non-response rate, etc. The actual oversampling during monitoring will follow the oversampling procedure set in the monitoring plan (*please also refer to assessment under “Oversampling and reliability calculation” below*).

Therefore, based on the above assessment, for the 1<sup>st</sup> real-case CPA, the sample size of the monitoring parameters  $\underline{N}_{p/u}$ ,  $p_{op\ stoves,y}$  and  $p_{residual\_NRB,y}$  for the 1<sup>st</sup> periodic monitoring period is estimated *ex-ante* and confirmed as below, the calculation of which can be reproduced and confirmed traceable, conservative and valid.

| CPA grouping<br>(precision/confidence<br>requirements)   | Minimum<br>sample size<br>for the<br>determination<br>of<br>$1 - p_{residual\_NRB,y}$ | Minimum<br>sample size<br>for the<br>determination<br>of<br>$p_{op\ stoves,y}$ | Minimum<br>sample size<br>for the<br>determination<br>of<br>$\underline{N}_{p/u}$ | Minimum<br>sample size<br>chosen for<br>first period<br>$\Omega$ | Oversampling<br>of 20% |
|--|---|--|---|--|------------------------|
| CPA001 alone<br>(90/10)  | 48  | 15   | 25  | 48   | 58                     |
| CPA001 grouped<br>with all CPAs<br>adopting the same<br>type of ICS (same<br>specifications) and<br>with the same<br>boundary<br>(95/10) | 68  | 21   | 35  | 68   | 82                     |

**>> For the monitoring of  $B_{y,new,KPT}$  or  $\eta_{new,y}$  and  $B_{y,new,survey}$  or  $SC_{new,y}$ :**

For the monitoring parameter  $B_{y,new,KPT}$ , if the option 1 is chosen, the calculation of the sample size follows the formula from the Guidelines for Performance Tests of Energy Saving Devices and Kitchen Performance Tests by Climate Care /43/, i.e.

$$n_{\min} \geq \left( \frac{S_y}{y} \times \frac{t_{\alpha/2}}{x/100} \right)^2$$

where,

|                |  |
|----------------|--|
| $S_y$          | Standard error   |
| $y$            | Mean fuel use  |
| $x$            | depending on precision desired (10 in case of 90/10 or 5 in case 95/5) |
| $t_{\alpha/2}$ | Student's t Critical Values  |

|  |   |
|--|---|
|  | It is confirmed that this value is equal to 1.96 in the case when 95% confidence interval and a 10% margin of error are required and value, and equal to 1.645 in the case when 90% confidence interval and a 10% margin of error are required. |
|--|---|

In case Option 1 is chosen for the subsequent monitoring period, the sample size of the monitoring parameter  $B_{y,new,KPT}$  is estimated *ex-ante* and confirmed as below, the calculation of which can be reproduced and confirmed traceable, conservative and valid.

| precision/confidence requirements | Expected Variance | Minimum Number of cook stoves to be sampled<br>$n_{min}$ | Sample size with oversampling |
|-----------------------------------|-------------------|--|-------------------------------|
| (90/10)                           | 40%               | 44   | 61                            |
| (95/10)                           | 40%               | 246  | 345                           |

The monitoring parameters  $\eta_{new,y}$  and  $B_{y,new,survey}$ , or  $SC_{new,y}$ , which are mean value parameters, the calculation of the sample size correctly follows the formula in the Guideline “sampling and surveys for CDM project activities and programme of activities” (Version 03.0, EB 75 Annex 08), i.e.

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

where,

|                |  |
|----------------|--|
| $N_{age,y}$    | number of stoves distributed belonging to the age class y  |
| $V$            | $V = \left( \frac{\text{standard deviation}}{\text{mean}} \right)^2$   |
| $t_{\alpha/2}$ | Student's t Critical Values<br><br>It is confirmed that this value is equal to 1.96 in the case when 95% confidence interval and a 10% margin of error are required and value, and equal to 1.645 in the case when 90% confidence interval and a 10% margin of error are required. |

Stoves of the same age class are defined as all stoves that have been sold within one year / 365 days. In another word, the sold dates of any two stoves within the same age classes will not exceed 365 days.

$\eta_{new,y}$  is monitored per age class and The final average efficiency calculated based on the results from each sample per age class will be the measured efficiency per age class

multiplied by the proportion of each age class stove over the overall population as described in the PoA-DD and CPA-DD.

The approach is considered feasible and accepted for sampling plan based on the information of sold date in the collected ICS database.

The sample size of the monitoring parameter  $\eta_{new,y}$  and  $B_{y,new,survey}$ , or  $SC_{new,y}$ , is estimated *ex-ante* and confirmed as below, the calculation of which can be reproduced and confirmed traceable, conservative and valid.

| Number of cook stoves operating under CPA001 | Expected efficiency of cook stoves at 1 <sup>st</sup> monitoring session | Expected standard deviation of the efficiency | Minimum sample size per age class | Sample size per age class with oversampling |
|--|--|---|-----------------------------------|---|
| 16,666                                       | 0.309  | 0.031   | 3                                 | 4   |

According to the WBT test report /23.1/ and the WBT spreadsheet /23.2/, it is confirmed that the expected efficiency of 30.9% (or 0.309) is based on three tests done by LES/UL, the results of which are 30% (test 1), 32.1% (test 2) and 30.6% (test 3), respectively. The standard deviation of these three test results is calculated as 0.0108 /23.3/, which is checked and confirmed to be valid. Furthermore, the PP uses 10% of the mean for the Standard Deviation, i.e. 0.0309, higher than the calculated standard deviation of the three WBT results (i.e. 0.0108), which is considered conservative and hence accepted.

As per the PoA-DD, the determination of minimum sample size follows Clause 12 of the standard “*sampling and surveys for CDM project activities and programme of activities*” (Version 04.1, EB 74 Annex 6), i.e.

*“If the sample size calculation returns a value of less than 30 samples, a minimum sample size of 30 shall be chosen when the parameter of interest is a proportion. If the parameter of interest is a numeric mean value (i.e. not a proportion or percentage) the Student’s t-distribution shall be used if the resulting sample size is less than 30”.*

Since the monitoring parameter  $\eta_{new,y}$  is a numeric mean value and the calculated sample size is less than 30, the Student’s t-distribution shall be used.

In the case of CPAs targeting communities and SMEs, all the ICSs used by the sampled target end-user will be considered as a single sample. The validation team considers this arrangement is appropriate as the end-user may use more than one ICS and the cooking process of one meal may be handled by several ICSs. It will be impossible to determine the no. of meal prepared by each ICS used per serving of meals. Moreover, this approach can be successfully associated with the baseline calculations of fuelwood consumption (i.e.  $M_{woody,biomass,app}$ ) for communities and SMEs.

In conclusion, the validation team considers that the PP has correctly applied the Guideline “sampling and surveys for CDM project activities and programme of activities” (Version 03.0, EB 75 Annex 08) for the estimation of sampling size.

- **Data to be collected:**

- Field measurement objectives and reliability requirements: The details on frequency, scope and method of survey of the monitoring parameters, which are required to be sampled, are described in Part II, section B.7.1 of the PoA-DD. Moreover, it is stated that sampling will be conducted annually and the monitored parameters, which require sampling, are considered unlikely to be affected by seasonal influences, since they are related to the cooking habits of ICS users in Togo.
- Sample drawing: Samples will be drawn randomly for each monitoring period from the list of adequate stoves by electronic means and under control of a third party. Moreover, it is stated that during frequent monitoring periods, future sample drawing will take place right before the start of each monitoring period, based on the overall registry of both previously distributed stoves and ready-to-distribute ones.
- Oversampling and reliability calculation: Oversampling will be applied for the calculated sample size following the step-wise procedure described in the monitoring plan. Moreover, the reliability of the monitoring parameters will be checked following the method given in the Appendix B “Best practice examples for reliability calculations” of Guideline “sampling and surveys for CDM project activities and programme of activities” (Version 03.0, EB 75 Annex 08) for proportional parameter, i.e.

$$r = \frac{\frac{1}{2} \text{ width of confidence interval}}{\text{proportion}} \times 100\%$$

For mean value parameters,

$$r = \frac{\frac{1}{2} \text{ width of confidence interval}}{\text{mean}} \times 100\%$$

The oversampling procedure is confirmed to be valid and conservative, and could ensure the reliability of the sampling results.

- Monitoring periods, frequency and aggregation: It is confirmed that the lengths of recording periods within one monitoring period will vary during different stages of the project implementation.
- Quality assurance/quality control: It is described that the CME will crosscheck the database of all monitoring information. Moreover, the monitoring team will have occasional site visit to have random spot checks of the involved stoves. Procedures for conducting data collection with quality assurance / quality control are also provided under the implementation plan.

- **Implementation plan / QA/QC procedures:**

During the on-site interview with the CME /i/, the CME will be in charge of and responsible for the monitoring of each CPA. The organizational Structure diagram of the CME /16/ was checked for confirming its management structure. Any personnel involved in the monitoring will be trained by the CME or by a person dedicated by the CME before performing any monitoring activity.

The following steps are given in the sample plan or scheduling sampling efforts, identifying skills and resources required for each implementation plan' step taking into consideration quality assurance/quality control procedures, which is confirmed to ensure the sampling efforts to achieve good quality data:

- Step 1: Selecting an option for monitoring (option 1, 2 or 3 according to AMS-II.G)*
- Step 2: Stove distribution and agreement contract execution*
- Step 3: Database listing*
- Step 4: CPA or cross-CPA*
- Step 5: Sample size calculation*
- Step 6: Oversampling*
- Step 7: Sample selection*
- Step 8: Sample assignment*
- Step 9: Monitoring agent's visit*
- Step 10: Consolidation of monitoring visits results*
- Step 11: Record keeping.*

According to standard "Sampling and surveys for CDM project activities and programme of activities" (Version 04.1, EB 74 Annex 6), "CDM PDDs or CDM Programme of Activities Design Documents (CDM-PoA-DDs, CDM-CPA-DDs) utilizing sampling for the determination of parameter values for calculating emission reductions shall include a sampling plan with a description of the sampling approach, important assumptions, and justification for the selection of the chosen approach". By further referring to the Guideline "sampling and surveys for CDM project activities and programme of activities" (Version 03.0, EB 75 Annex 08), the following evaluation criteria are recommended for DOE validation:

| <b>Questions referred from the Guideline "sampling and surveys for CDM project activities and programme of activities" (Version 03.0, EB 75 Annex 08).</b> | <b>Assessment opinions from the validation team</b>  |
|--|--|
| <i>Does the sampling plan present a reasonable approach for obtaining unbiased, reliable estimates of the variables?</i>                                   | By reviewing the sampling plan provided in Part II, section B.7.2 of the PoA-DD as well as Section D.7.2 of the 1 <sup>st</sup> real-case CPA-DD, the validation team confirms that the elements of Objectives and Reliability Requirements are complete and does not suspect that the results from the activity will be biased. |
| <i>Is the population clearly defined, and how well does the proposed approach to developing the sampling frame represent that population?</i>              | The validation team confirms that the sampling plan has clearly defines the target population of the sampling.   |
| <i>Is the proposed sampling approach clear?</i>  | The validation team confirms that the  |

|  |  |
|--|--|
|  | sampling method is clearly proposed as simple random sampling.   |
| <i>Is the proposed sample size adequate to achieve the minimum confidence/precision requirements? Is the ex ante estimate of the population variance needed for the calculation of the sample size adequately justified?</i> | The validation team confirms that necessary information has been set out in the sampling plan to calculate the sample size, by also taking the minimum confidence/precision requirements into consideration. Moreover, the target values for the population parameters and the estimate of variability are confirmed reasonable. |
| <i>Is the sample representative?</i>   | The validation team confirms that the sample database will be kept electronically as well as original hard copies. The sample will be selected randomly, which ensures the sample to be representative.  |
| <i>Is the data collection/measurement method likely to provide reliable data given the nature of the parameters of interest and project, or is it subject to measurement errors?</i>   | The validation team confirms that the methods of data collection are clear and unambiguous, and do not include any question that could be subject to measurement error.  |
| <i>Are the procedures for the data measurements well defined and do they adequately provide for minimizing non-sampling errors?</i>  | The validation team confirms that the described QA/QC procedures is adequate to handle any missing data, wrong data or uncertainty, and ensure a real, measurable and conservative calculation of emission reductions from a CPA.  |
| <i>Does the frame contain the information necessary to implement the sampling approach?</i>  | The validation team confirms that the persons conducting the sampling activities will be trained, which could ensure adequate qualifications and skills of them.   |

Therefore, based on above assessment, the validation team confirms that a statistically sound sampling method has been adopted and the sampling plan is described transparently in the PoA-DD as well as CPA-DD, which is in accordance with the requirements of standard “*Sampling and surveys for CDM project activities and programme of activities*” (Version 04.1, EB 74 Annex 6).

### 3.10 Sustainable Development

The validation team validated that the programme is considered to be contributing to sustainable development of host country (i.e. Togo) mainly in the following ways:

- Reducing deforestation due to the less consumption of non-renewable woody biomass by the ICSs;
- Reducing greenhouse emissions due to less CO<sub>2</sub> to be produced during combustion;
- Improving indoor air quality and users’ health due to less smoke from the cooking stoves;



- Reducing the time and cost of procuring fuel compared with traditional cook stoves;
- Increasing employment which may arise from stove manufacturing & dissemination;
- transferring of clean technology and know-how (foreign design improved cook stoves)

The validation team interviewed the representative of the DNA of Togo /iv/ during OSV and got the above positive feedbacks. Thus, the sustainable development in social, environmental and economic aspects could be achieved by implementation of the PoA.

Moreover, the LoA from the DNA of Togo /37.1/ has been received for officially confirming the PoA's assistance to achieve the sustainable development of Togo.

### 3.11 Environmental Impacts (at PoA level)

Referring to the PoA-DD form /3.1/, environmental analysis can be done at PoA level or CPA level. It has been indicated in Part I, section E.1 of the PoA-DD /1.2/ that the environmental analysis is done at the PoA level.

As per on-site interview with representative of the DNA of Togo /iv/, it is confirmed that there is no requirement to conduct an environmental impact assessment for implementing an ICS PoA and its CPAs, and no negative impact is expected on the local environment. This is further confirmed from the Framework Law on the Environment in Togo /18.1/ and Decree No. 2006-058/PR on the conditions and procedures for carrying out Environmental Impacts Analysis and defining the categories of activities for which an EIA is required /18.2/.

Moreover, since the environmental analysis has been addressed in the PoA-DD, it is not necessary to be mentioned in the real-case CPA-DD, which is in line with the requirements of Part I, section E.1 of the PoA-DD template as well as the VVS Clause 199 & 200.

Therefore, the validation team confirms that the proposed PoA and its CPAs are not required to carry out environmental impact assessment according to relevant national laws/regulations of Togo, and also confirms that the PoA will not bring negative impacts to the environment of Togo.

### 3.12 Local Stakeholder Consultation (at PoA level)

Referring to the PoA-DD form /3.1/, it is allowed the local stakeholder consultation to be done at PoA level or CPA level. It has been indicated in Part I, section F.1 of the PoA-DD /1.2/ that the local stakeholder consultation is done at PoA level.

As per Part I, section F of the PoA-DD /1.2/, a stakeholder conference was held in Maritime region (the implementing location of the first real-case CPA) by PP on 6<sup>th</sup> February 2013. The invitation letter on the stakeholder consultation meeting for the proposed PoA was posted on Togo Presse on 1<sup>st</sup> February 2013 /19.1/. The attendance list /19.2/ and the PowerPoint presentation /19.3/ are also checked and confirmed valid. It is confirmed that 30 stakeholders participated in the consultation meeting.

PP summarized the comments including the feedbacks from stakeholders' comments and described in Part I, section F.2 of PoA-DD /1.2/. The general comments are positive. Major

concerns from the stakeholders are described in Part I, section F.2 of PoA-DD, and responses from the PP are also provided in Part I, section F.3.

During OSV, the validation team interviewed with three local stakeholders /iv/ /vi/ /viii/ who participated in the stakeholder consultation meeting held on 6<sup>th</sup> February 2013, as well as 8 local householders /x-xvii/ from Togo city. In general, they expressed their support to the programme of activities.

In addition, the consultation was done prior to the publication of the PoA-DD on the UNFCCC website (i.e. 13<sup>th</sup> March 2013). Therefore, the validation team considers the stakeholder consultation is adequately conducted and complies with the requirement in VVS Clause 201 & 202.

### **3.13 Comments by Parties, Stakeholders and NGOs**

The PoA-DD / Version 01, generic CPA-DD / Version 01 and a real-case CPA-DD / Version 01 were made publicly available on UNFCCC's website (<http://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/ACS2B35M0XY389CTPD0C4B7XK2JDV1/view.html>) and parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 13<sup>th</sup> March to 11<sup>th</sup> April 2013. Until the end of publication period, no comment was received.

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## Appendix A

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### **THE VALIDATION PROTOCOL FOR CDM PROGRAMME OF ACTIVITIES**

based on CDM Validation and Verification Standard, Annex 5 of EB 75 report

Man and Man Enterprise Improved Cooking Stoves Programme in Togo

in

Togo

Report No. 01 997 91050 73978

Version No. 02.1

**Table A Mandatory Requirements for Clean Development Mechanism (CDM) Programme of Activities (PoA)**

| Requirement   | Reference                  | Conclusion   |
|---|----------------------------|--|
| <b>About Parties</b>  |                            |  |
| 1. The programme shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. | Kyoto Protocol Art.12.2    | The proposed programme is a bilateral CDM PoA which involves two project participants: Man and Man Enterprise, also as the coordinating / managing entity (CME) of the PoA, from the host country of the PoA (i.e. Togo), and Eneco Energy Trade B.V. from the Annex I country of the PoA (i.e. United Kingdom of Great Britain and Northern Ireland). This requirement is fulfilled.  |
| 2. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.                                      | Kyoto Protocol Art.12.2.   | <p>The ultimate objective of the UNFCCC is to achieve "...stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".</p> <p>The programme aims at replacing traditional stoves with high efficiency biomass fired cook stoves (i.e. improved cook stoves (ICSs)) in Togo. Emission reductions can be achieved by less use of wood fuel due to combustion efficiency increase.</p> |
| 3. The project shall have the written approval of voluntary participation from the designated national authority of each Party involved.      | Kyoto Protocol Art. 12.5a, | The Letter of Approval (LoA) issued by the DNA of Togo /37.1/ has been   |

| Requirement   | Reference   | Conclusion   |
|---|---|--|
|   | CDM Modalities and Procedures §40a                                    | received for confirming the voluntary participation of Man and Man Enterprise and its coordination role on the PoA.<br><br><u><del>CAR01</del></u><br><del>Please provide the Letters of Approval (LoAs) from the host country and the Annex I country for validation.</del> |
| 4. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.  | Kyoto Protocol Art. 12.2,<br>CDM Modalities and Procedures §40a       | The LoA from the DNA of Togo /37.1/ has been received for confirming the proposed programme in contributing to sustainable development of Togo.<br><br><u><del>See CAR01</del></u>   |
| 5. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties. | Decision 17/CP.7,<br>CDM Modalities and Procedures Appendix B,<br>§ 2 | According to Section A.4.5 and Annex 2 of the PoA-DD and on-site interview with the representative from Man and Man Enterprise /i/ and the representative of the DNA of Togo /iv/, there is no public funding from Annex I countries involved in the PoA.                    |
| 6. Parties participating in the CDM shall designate a national authority for the CDM.   | CDM Modalities and Procedures §29                                     | Direction de l'Environnement is the designated national authority (i.e. DNA) of Togo for the CDM.  |
| 7. The host Party and the participating Annex I Party shall be a Party to the   | CDM Modalities  | Yes. Togo accessioned the Kyoto  |

| Requirement  | Reference                          | Conclusion  |
|--|------------------------------------|---|
| Kyoto Protocol.  | §30/31a                            | Protocol on 2 <sup>nd</sup> July 2004.  |
| 8. The participating Annex I Party's assigned amount shall have been calculated and recorded.  | CDM Modalities and Procedures §31b | The proposed programme is a bilateral CDM PoA and the Annex I party is United Kingdom of Great Britain and Northern Ireland (UK). The assigned amount of the UK have been calculated and recorded.  |
| 9. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.                                   | CDM Modalities and Procedures §31b | The proposed programme is a bilateral CDM PoA and the Annex I party is United Kingdom of Great Britain and Northern Ireland (UK). The UK has in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7. |
| <b>About Design of Programme</b>   |                                    |   |
| 10. The CDM-POA-DD sets a framework for the implementation of the PoA and defines unambiguously a CPA under the PoA.   | PoA Procedures § 2                 | Yes. The implementation of the PoA is described in the PoA-DD. Moreover, detailed descriptions of criteria for enrolling the CPA are provided in section A.4.2.2 of the PoA-DD.   |
| 11. The coordinating/managing entity shall be identified.  | PoA Procedures § 2 (a)             | Man and Man Enterprise is the coordinating / managing entity (CME) of the PoA.  |
| 12. The boundary for the PoA in terms of a geographical area (e.g., municipality, region within a country, country or several countries) within which all CPAs included in the PoA will be implemented is defined. | PoA Procedures § 2 (b)             | CDM Component Project Activities (CPAs) under the PoA will be implemented in Togo.  |

| Requirement  | Reference                     | Conclusion   |
|--|-------------------------------|--|
| <p>13. Eligibility criteria are defined for inclusion of a project activity as a CPA under the PoA, which shall include criteria for demonstration of additionality, and the type and/or extent of information (e.g. criteria, indicators, variables, parameters or measurements) that shall be provided by each CPA in order to ensure its eligibility.</p> | <p>PoA Procedures § 2 (g)</p> | <p>Yes, detailed descriptions of criteria for enrolling the CPAs are provided in section B.2 of the PoA-DD, which include criteria for demonstration of additionality, and the type and/or extent of information (e.g. criteria, indicators, variables, parameters or measurements) that shall be provided by each CPA in order to ensure its eligibility, which are in accordance with the requirements of “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities” (Version 03.0, EB 74 Annex 05) /10.2/ by addressing the following points:</p> <p><i>“(a) The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA;</i></p> <p><i>(b) Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);</i></p> <p><i>(c) The specifications of technology/measure including the level and type of service, performance specifications including compliance with</i></p> |



| Requirement | Reference | Conclusion  |
|-------------|-----------|---|
|             |           | <p>testing/certifications;</p> <p>(d) Conditions to check the start date of the CPA through documentary evidence;</p> <p>(e) Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs;</p> <p>(f) The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section A above;</p> <p>(g) The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;</p> <p>(h) Conditions to provide an affirmation that funding from Ann ex I parties, if any, does not result in a diversion of official development assistance;</p> <p>(i) ....., target group (e.g. domestic/commercial/industrial, rural/urban, gridconnected/off-grid) and distribution mechanisms (e.g. direct installation);</p> <p>(j) ....., the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling;</p> |

| Requirement  | Reference              | Conclusion   |
|--|------------------------|--|
|  |                        | <p>(k) ...., the conditions that ensure that every CPA in aggregate meets the small-scale or microscale threshold criteria<sup>6</sup> and remains within those thresholds throughout the crediting period of the CPA;</p> <p>(l) ...., the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories.”</p>   |
| 14. The length of the PoA is not exceeding 28 years.   | PoA Procedures § 2 (h) | The length of the PoA is taken as 28 years.  |
| 15. The operational and management arrangements established by the coordinating/managing entity for the implementation of the PoA is described, including a description of a record keeping system for each CPA under the PoA, a system/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as CDM project activity or as a CPA of another PoA, the provisions to ensure that those operating the CPA are aware and have agreed that their activity is being subscribed to the PoA. | PoA Procedures § 2 (i) | <p>The operational and management arrangement has been established in the PoA-DD Section C for the implementation of PoA. The operation Management System can assure to meet the requirement indicated in the relevant section of SSC-PoA-DD form /3.1/:</p> <ol style="list-style-type: none"> <li>1) Record keeping system for each CPA under the PoA;</li> <li>2) Procedure to avoid double counting;</li> <li>3) Procedure to check for debundling;</li> <li>4) Awareness and agreement of those operating a CPA on PoA subscription.</li> </ol> |
| 16. The proposed statistically sound sampling method/procedure to be used by DOEs for  | PoA Procedures § 2     | The detailed sampling plan is  |

| Requirement  | Reference   | Conclusion   |
|--|---|--|
| <p>verification of the amount of emission reductions achieved by CPAs under the PoA is described. In case the coordinating/managing entity opts for a verification method that does not use sampling but verifies each CPA there is a transparent system defined and described that ensures that no double accounting occurs and that the status of verification can be determined anytime for each CPA.</p> | (k)   | <p>described in Part II, section B.7.2 of the PoA-DD, which is confirmed to be in accordance with the requirements in the Guideline “sampling and surveys for CDM project activities and programme of activities” (Version 03.0, EB 75 Annex 08) /10.3/.</p>   |
| <b>About small-scale programmes of activities (if applicable)</b>  |   |  |
| <p>17. The CPAs shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakech Accords.</p>  | <p>Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c</p> | <p>Yes, detailed descriptions of criteria for enrolling the CPAs are provided in section B.2 of the PoA-DD, which include criteria for demonstration of additionality, and the type and/or extent of information (e.g. criteria, indicators, variables, parameters or measurements) that shall be provided by each CPA in order to ensure its eligibility, which are in accordance with the requirements of “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities” (Version 03.0, EB 74 Annex 05) /10.2/ by addressing the following points:</p> <p><i>“(a) The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA;</i></p> <p><i>(b) Conditions that avoid double</i></p> |

| Requirement | Reference | Conclusion   |
|-------------|-----------|--|
|             |           | <p>counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);</p> <p>(c) The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications;</p> <p>(d) Conditions to check the start date of the CPA through documentary evidence;</p> <p>(e) Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs;</p> <p>(f) The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section A above;</p> <p>(g) The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;</p> <p>(h) Conditions to provide an affirmation that funding from Ann ex I parties, if any, does not result in a diversion of official development assistance;</p> <p>(i) ....., target group (e.g.</p> |

| Requirement  | Reference  | Conclusion  |
|--|--|---|
|  |  | <p>omestic/commercial/industrial, rural/urban, gridconnected/off-grid) and distribution mechanisms (e.g. direct installation);</p> <p>(j) ...., the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling;</p> <p>(k) ...., the conditions that ensure that every CPA in aggregate meets the small-scale or microscale threshold criteria<sup>6</sup> and remains within those thresholds throughout the crediting period of the CPA;</p> <p>(l) ...., the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories.”</p> |
| <b>About additionality</b>   |  |   |
| <p>18. Additionality of the programme as a whole is demonstrated because in the absence of the CDM (i) the proposed voluntary measure would not be implemented, or (ii) the mandatory policy/regulation would be systematically not enforced and that non- compliance with those requirements is widespread in the country/region, or (iii) that the PoA will lead to a greater level of enforcement of the existing mandatory policy/ regulation.</p> | <p>Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43 PoA Procedures § 2 (e)</p> | <p>As per the applied baseline and monitoring methodology, the SSC additionality guideline “Guidelines on the demonstration of additionality of small-scale project activities” (Version 09, EB 68 Annex 27) is applied to demonstrate additionality. It is confirmed that the proposed PoA is a voluntarily coordinated action and it would not be implemented in the absence of the CDM, due to high investment barriers.</p>   |

| Requirement  | Reference              | Conclusion   |
|--|------------------------|--|
|  |                        | <p>As per the PoA-DD Part I, Section B.1, the PP stated that “<i>neither law nor regulation obligates the distribution or use of ICS in Togo</i>”. As per on-site interview with representative of the DNA of Togo /iv/, it is confirmed that there is no mandatory law/regulation or governmental campaign to adopt the ICSs by households in Togo.</p> <p>Moreover, the validation team confirms that there is no incentive other than CER revenues which enable the CME of the PoA and IE(s) of the CPAs to implement the project activities and sell ICSs at a affordable price to local households.</p> <p>Thus the validation team confirms that the proposed PoA is a voluntary action and in the absence of the CDM support, the proposed voluntary measure would not be implemented. The additionality of the PoA as a whole is therefore clearly demonstrated.</p> |
| 19. Additionality of a typical CPA is demonstrated by using the procedure provided in the baseline and monitoring methodology applied. | PoA Procedures § 2 (f) | The additionality of CPAs is included in the eligibility criteria for inclusion of a SSC-CPA in the PoA in Part I, section B.2 of the PoA-DD and section D.5 of the real-case  |

| Requirement  | Reference                            | Conclusion  |
|--|--------------------------------------|---|
|  |                                      | CPA-DD, which is in accordance with the requirement of standard “ <i>Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities</i> ” (Version 03.0, EB 74 Annex 05). As per the applied baseline and monitoring methodology, the SSC additionality guideline “Guidelines on the demonstration of additionality of small-scale project activities” (Version 09, EB 68 Annex 27) is applied to demonstrate additionality. |
| <b>About application of baseline and monitoring methodology</b>  |                                      |   |
| 20. The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.   | CDM Modalities and Procedures §37e   | The PoA and its CPAs applies the approved baseline and monitoring methodology AMS-II.G./ Version 05 “Energy Efficiency Measures in Thermal Applications of Non-renewable Biomass”, which is approved by the EB.   |
| 21. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances. | CDM Modalities and Procedures §45c,d | As the per PoA-DD section B.4, the baseline scenario is prescribed according to the applied methodology AMS-II.G./ Version 05, “ <i>it is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs</i> ”.   |



| Requirement   | Reference                          | Conclusion   |
|---|------------------------------------|--|
| 22. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.  | CDM Modalities and Procedures §47  | The applied methodology AMS-II.G./ Version 05 excludes to earn CERs for decreases in activity levels outside the project activity or due to force majeure.   |
| 23. The monitoring plan for a typical CPA is developed in accordance with the approved monitoring methodology, and identification of the monitoring provisions and data parameters a CPA has is to apply/monitor  | PoA Procedures § 2 (j)             | For each CPA, all parameters described in Part II, section D.7.1 of the PoA-DD will be monitored according to the monitoring plan in section D.7.2. By reviewing the monitoring plan, the validation team considers that the monitoring plan for a typical CPA meets the requirements of the approved monitoring methodology AMS-II.G./Version 05.0. |
| 24. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.  | CDM Modalities and Procedures §37f | The validation team confirms that the provisions for monitoring, verification and reporting are in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.  |
| <b>About forecast emission reductions</b>   |                                    |  |
| 25. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out. | CDM Modalities and Procedures §37c | As per on-site interview with representative of the DNA of Togo /iv/, it is confirmed that there is no requirement to conduct an environmental impact assessment for implementing an ICS PoA and its CPAs, and no negative impact is   |

| Requirement   | Reference                                 | Conclusion   |
|---|---|--|
|   |   | <p>expected on the local environment. This is further confirmed from the Framework Law on the Environment in Togo /18.1/ and Decree No. 2006-058/PR on the conditions and procedures for carrying out Environmental Impacts Analysis and defining the categories of activities for which an EIA is required /18.2/.</p> <p>Moreover, since the environmental analysis has been addressed in the PoA-DD, it is not necessary to be mentioned in the real-case CPA-DD.</p>   |
| <b>About stakeholder comments</b>   |   |  |
| <p>26. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.</p> | <p>CDM Modalities and Procedures §37b</p> | <p>As per Part I, section F of the PoA-DD /1.2/, a stakeholder conference was held in Maritime region (the implementing location of the first real-case CPA) by PP on 6<sup>th</sup> February 2013. The invitation letter on the stakedholder consultation meeting for the proposed PoA was posted on Togo Presse on 1<sup>st</sup> February 2013 /19.1/. The attendance list /19.2/ and the PowerPoint presentation /19.3/ are also checked and confirmed valid. It is confirmed that 30 stakeholders participated in the consultation meeting.</p> |

| Requirement   | Reference   | Conclusion   |
|---|---|--|
| 27. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available. | CDM Modalities and Procedures §40                     | The PoA-DD/ Version 01 and a real-case CPA-DD/ Version 01 were made publicly available on UNFCCC's website and parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 13 <sup>th</sup> March to 11 <sup>th</sup> April 2013. Until the end of publication period, no comment was received. |
| <b>Other</b>  |   |  |
| 28. The project design document shall be in conformance with the UNFCCC CDM-SSC-PoA-DD format.  | CDM Modalities and Procedures Appendix B, EB Decision | Yes. The PoA-DD is in conformance with the UNFCCC CDM-SSC-PoA-DD format /3.1/.   |

**Table B: Requirement Checklist**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Standard, Appendix 3 of EB 70)

(MoV = Means of Verification, DR= Document Review, I= Interview)

| CHECKLIST QUESTION   | Ref. | MoV* | Findings, comments, references, data sources   | Draft Concl. | Final Concl.                                 |
|--|------|------|--|--------------|--|
| <b>A. General Description of Programme Activity</b><br><b>The project design is assessed.</b>  |      |      |  |              |  |
| <b>A.1 Programme Boundaries</b><br><i>Project/Programme Boundaries are the limits and borders defining the GHG emission reduction project.</i>   |      |      |  |              |  |
| A.1.1. Are the programme's spatial boundaries (geographical) clearly defined?  | /1/  | DR   | Yes. As per the PoA-DD /1/, the geographical boundary of the PoA is clearly defined as Togo.   | OK           | OK   |
| A.1.2. Are the programme's system boundaries (components and facilities used to mitigate GHGs) clearly defined?  | /1/  | DR   | Yes. The system boundaries are the Improved Cooking Stoves (ICSs).   | OK           | OK   |
| A.1.3. Can each CPA under the PoA be clearly identified individually including spatial boundaries (geographical) clearly defined   | /1/  | DR   | Yes. All the CDM component project activities (CPAs) under the PoA will be implemented in Togo.  | OK           | OK   |
| <b>A.2 Participation Requirements</b><br><i>Referring to Part A, Annex 1 and 2 of the PoA-DD as well as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.</i> |      |      |  |              |  |
| A.2.1 Which Parties and programme participants are participating in the project?   | /1/  | DR   | The proposed programme is a bilateral CDM PoA which involves two project participants: Man and Man Enterprise, also as the coordinating / managing entity (CME) of the PoA, from the host country of the PoA (i.e. Togo), and Eneco Energy | <b>CAR02</b> | Closed. Please refer to Table C for details. |

|  |     |    |   |                  |  |
|--|-----|----|---|------------------|--|
|  |     |    | <p>Trade B.V. from the Annex I country of the PoA (i.e. United Kingdom of Great Britain and Northern Ireland).</p> <p><b><u>CAR02</u></b><br/>Please provide the Modalities of Communication (MoC) form for validation.</p>   |                  |  |
| A.2.2 Has the coordinating/managing entity of the programme been identified?   | /1/ | DR | <p>Yes. The project participant, Man and Man Enterprise, is the coordinating / managing entity (CME) of the PoA.</p>  | OK               | OK   |
| A.2.3 Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party?  | /1/ | DR | <p>The LoA from the DNA of Togo /37.1/ has been received for confirming the voluntary participation and the coordination of the PoA by Man and Man Enterprise; and also the PoA assisting to achieve the sustainable development of Togo. Moreover, the LoA from the DNA of the UK /38.1/ has also been received for confirming the voluntary participation of Eneco Energy Trade B.V. in the PoA.</p> <p><u>Please refer to <b>CAR01</b></u></p> | <del>CAR01</del> | Closed. Please refer to Table C for details. |
| <p>A.2.4 Do all participating Parties fulfil the participation requirements as follows:</p> <ul style="list-style-type: none"> <li>- Ratification of the Kyoto Protocol</li> <li>- Voluntary participation</li> <li>- Designated a National Authority</li> </ul> | /1/ | DR | <p>Yes. The host party, i.e. Togo, meets all relevant participation requirements in CDM. Togo accessioned the Kyoto Protocol on 2<sup>nd</sup> July 2004. Direction de l'Environnement is the designated national authority (DNA) of Togo.</p> <p><u>Please refer to <b>CAR01</b></u></p>   | <del>CAR01</del> | Closed. Please refer to Table C for details. |

|  |     |         |   |               |  |
|--|-----|---------|---|---------------|--|
| A.2.5 Has it been checked that if there is public funding for the programme from Parties in Annex I, this funding shall not be a diversion of official development assistance.   | /1/ | DR      | According to Part I, section A.7 and Appendix 2 of the PoA-DD and on-site interview with the representative from Man and Man Enterprise /i/ and the representative of the DNA of Togo /iv/, there is no public funding from Annex I countries involved in the PoA. Thus the validation team confirms that there is no diversion of official development assistance (ODA) towards Togo involved in the proposed PoA. | OK            | OK   |
| <b>A.3 Technology to be employed</b><br><i>Validation of project technology focuses on the programme engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i> |     |         |   |               |  |
| A..3.1 Does the programme design engineering reflect current good practices?   | /1/ | I<br>DR | Yes. The programme aims at replacing traditional stoves with highly efficient cook stoves (i.e. improved cook stoves (ICSs)) in Togo.   | OK            | OK   |
| A.3.2 Does the programme use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?   | /1/ | I<br>DR | As per the PoA-DD, the ICSs, which will be disseminated to local households, could allow quicker heating-up, longer cooking and heat retaining with less woodfuel consumption as well as lower combustion fumes. Emission reductions can be achieved by less use of wood fuel and also avoiding inefficient conversion from wood into charcoal.   | <del>OK</del> | Closed. Please refer to Table C for details. |

|   |     |         |   |              |  |
|---|-----|---------|---|--------------|--|
|   |     |         | <b>CL01</b><br>Please provide document evidence(s) for the technical lifetime of the ICS adopted in the first real-case CPA.  |              |  |
| A.3.3 Does the programme make provisions for meeting training and maintenance needs?  | /1/ | I<br>DR | Yes. Provisions for meeting training and maintenance needs are provided in the PoA-DD.  | OK           | OK   |
| <b>A.4 Contribution to Sustainable Development</b><br><i>The programme's contribution to sustainable development is assessed.</i> |     |         |   |              |  |
| A.4.1 Has the host country confirmed that the programme assists it in achieving sustainable development?                          | /1/ | DR      | Yes. The LoA from the DNA of Togo /37.1/ has been received for officially confirming the PoA assisting to achieve the sustainable development of Togo.<br><br><u>Please refer to <b>CAR01</b></u>   | <b>CAR01</b> | Closed. Please refer to Table C for details. |
| A.4.2 Will the programme create other environmental or social benefits than GHG emission reductions?                              | /1/ | I<br>DR | The validation team validated that the programme is considered to be contributing to sustainable development of host country (i.e. Togo) in the following ways:<br>➤ Reducing deforestation due to the less consumption of non-renewable woody biomass by the ICSs;<br>➤ Reducing greenhouse emissions due to less CO <sub>2</sub> to be produced during combustion;<br>➤ Improving indoor air quality and users' health due to less smoke from the cooking stoves;<br>➤ Reducing the time and cost of procuring fuel | OK           | OK   |



|  |     |    |  |             |  |
|--|-----|----|--|-------------|--|
|  |     |    | <p>compared with traditional cook stoves;</p> <ul style="list-style-type: none"> <li>➤ Increasing employment who being employed for the ICS assembling;</li> <li>➤ transferring of clean technology and know-how (foreign design improved cook stoves)</li> </ul> <p>The validation team interviewed the representative of the DNA of Togo /iv/ during OSV and got the above positive feedbacks. Thus, the sustainable development in social, environmental and economic aspects could be achieved by implementation of the PoA.</p> |             |  |
| <b>A.5 Small scale component project activity</b><br><i>Is this assessed whether the project qualifies as small-scale CDM project activity</i>                                   |     |    |  |             |  |
| A.5.1. Do CPAs under the programme qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM? | /1/ | DR | Yes. The CPAs under the programme qualify as small scale CDM project activities as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM.  | OK          | OK   |
| A.5.2. Is the small scale project activity not a de-bundled component of a larger project activity?  | /1/ | DR | <p>According to “Guidelines on assessment of de-bundling for SSC project activities” (Version 03, EB 54 Annex 13),</p> <p><i>“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></p> <p>1% means “15 kW installed capacity or 0.6 GWh</p>  | <b>CL02</b> | Closed. Please refer to Table C for details. |

|  |     |    |   |             |  |
|--|-----|----|---|-------------|--|
|  |     |    | <p><i>annual energy savings or 0.6 ktCO<sub>2</sub>e annual emission reductions”.</i></p> <p>Since the annual energy savings per stove in the 1<sup>st</sup> CPA has not yet been fully clarified (<i>refer to CL02</i>), it is not fully confirmed yet whether CPAs of the PoA can be exempted from performing de-bundling check.</p> <p><b><u>CL02</u></b></p> <p>Please provide more explanation for the determination of annual energy savings per stove in the 1<sup>st</sup> real-case CPA-DD. Moreover, the value of annual energy savings per stove in the CPA-DD and the calculation spreadsheet is found different. Please clarify.</p> |             |  |
| <b>A.6 Operational, management and monitoring plan for the programme</b>   |     |    |   |             |  |
| A.6.1. Do the operational and management arrangements established by the coordinating entity include a record keeping system for each CPA under the programme? | /1/ | DR | <p>Yes. The operational and management arrangements established by the coordinating entity include a record keeping system for each CPA under the programme.</p> <p>The following information will be recorded:</p> <ul style="list-style-type: none"> <li>- Name of customer and contact details (address &amp; phone number if applicable)</li> <li>- Name of the PoA</li> <li>- Name of the CPA</li> <li>- User group membership (if applicable)</li> </ul>  | <b>CL03</b> | Closed. Please refer to Table C for details. |

|  |     |    |  |    |    |
|--|-----|----|--|----|----|
|  |     |    | <ul style="list-style-type: none"> <li>- Date &amp; location of purchase</li> <li>- Signature of buyer</li> <li>- Stove model</li> <li>- Serial number of the stove</li> <li>- Name of seller</li> </ul> <p><b><u>CL03</u></b></p> <p>It is found that “GPS coordinates of implantation for built-in stoves” may be recorded instead of serial number. Please clarify how this will ensure unique identification of a stove if it is moved to different place.</p>   |    |    |
| A.6.2. Do the operational and management arrangements established by the coordinating entity include a system/procedure to avoid including CPAs that have already been registered either as CDM project activity or as a CPA of another PoA? | /1/ | DR | <p>Yes. As validated above, information to be recorded for each CPA is listed, including a unique serial number of the ICS. Moreover, as described in the PoA-DD, the CME will check the UNFCCC website and the latest version of the CDM UNEP/RISOE pipeline and the DNA to make sure that the proposed CPA is neither included under another PoA with similar scope within the borders of the PoA, nor in the process of being included. The CME will also verify that no individual CDM project activity bearing the same name and covering the same scope as the proposed SSC-CPA is neither registered, nor requesting registration.</p> <p>It is considered sufficient to avoid inclusion of ICSs from another CPA or CDM project activity and hence ensure no inclusion of a CPA that has</p> | OK | OK |

|   |               |     |  |                                      |  |
|---|---------------|-----|--|--------------------------------------|--|
|   |               |     | already been registered either as a CDM project activity or as a CPA of another PoA, and thus could avoid double accounting within the PoA.  |                                      |  |
| A.6.3. Do the operational and management arrangements established by the coordinating entity include provisions to ensure that CPA implementers are aware and have agreed that their activity is being subscribed to the PoA?   | /1/<br>/13.2/ | /DR | As per the PoA-DD, “ <i>prior to the implementation of each SSC-CPA the CPA implementer will engage in a binding contract with the CME</i> ”, which could ensure that they are aware and agree that the CPAs are subscribed to the PoA. For the 1 <sup>st</sup> CPA, it is implemented by Man and Man Enterprise, and the Legally binding agreement between the CME (i.e. Man and Man Enterprise) and the CPA implementer of the 1 <sup>st</sup> CPA (i.e. Man and Man Enterprise Togo) /44/ has been checked and confirmed valid. | OK                                   | OK   |
| A.6.4. Does the monitoring plan include a description of a proposed statistically sound sampling method and procedure to be used by designated operational entities for verification of GHG emission reductions by CPAs under the programme?<br><i>OR</i><br>If the programme does not use verification method that applies a statistical method for sampling, has a system been defined to avoid double counting of CERs, and is the system transparent? | /1/           | DR  | Yes, the monitoring plan includes a description of a proposed statistically sound sampling method and procedure to be used by designated operational entities for verification of GHG emission reductions by CPAs under the programme.   | OK                                   | OK   |
| <b>B. Duration of the Programme of Activities, Crediting Period</b>   |               |     |  |                                      |  |
| B.1.1. Is the programme starting date and length of the programme clearly defined and evidenced?  | /1/<br>/13.2/ | DR  | According to the Glossary CDM Terms (Version 07.0, EB 70 Annex 7) /11/, the starting date of the PoA/CPA is defined as, “ <i>In the context of a CDM project activity or CPA, the earliest date at which either the implementation or construction or real</i>   | <del>CAR03</del><br><del>CAR04</del> | Closed. Please refer to Table C for details. |

|  |  |   |  |  |
|--|--|---|--|--|
|  |  | <p><i>action of a CDM project activity or CPA begins. In the context of a CDM PoA, the date on which the coordinating/managing entity officially notifies the secretariat and the DNA of their intention to seek the CDM status or the date of publication of the PoA-DD for global stakeholder consultation in accordance with the relevant CDM rules and requirements”.</i></p> <p>As per Part I section D.1 of the PoA-DD, the starting date of the PoA is selected as “<i>13/03/2013 (date of publication of the proposed PoA for Global stakeholder consultation)</i>”. It is confirmed in line with definition in the Glossary CDM Terms.</p> <p>Meanwhile, the length of the PoA is taken as 28 years, which complies with the requirement of Clause 197 of the VVS.</p> <p>Regarding the starting date of the CPA, it is stated in the section A.8.1 of the GSP CPA-DD as “<i>01/04/2013</i>”, which “<i>has been determined as the expected sales date of the first cook stoves</i>”. However, the evidence regarding the selected starting date has not yet been provided, the validation team cannot yet confirm whether the selected starting date of PoA is reasonable and valid. <i>CAR is given.</i></p> |  |  |
|--|--|---|--|--|

|   |     |    |  |    |    |
|---|-----|----|--|----|----|
|   |     |    | <p>Regarding the starting date of the crediting period, it is required by the CDM Project Standard that “the crediting period shall only start after the date of registration of the proposed project activity as a CDM project activity”. Thus the starting date of the crediting period indicated in the 1<sup>st</sup> real-case CPA-DD is considered reasonable and valid.</p> <p><b><u>CAR03</u></b></p> <p>Please determine the starting date of the 1<sup>st</sup> CPA in accordance with the requirement in the Glossary CDM terms and provide relevant document evidence(s).</p> <p><b><u>CAR04</u></b></p> <p>Please determine the starting date of the crediting period of the 1<sup>st</sup> real-case CPA in accordance with the requirement in the CDM Project Standard.</p> |    |    |
| B.1.2. Does the PoA design documentation confirm that the length of the PoA does not exceed 28 years?   | /1/ | DR | Yes. As per the PoA-DD, the length of the PoA is 28 years.   | OK | OK |
| <b>C. Environmental Impacts</b><br><i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i> |     |    |  |    |    |
| C.1.1. Has an analysis of the environmental impacts of the programme been sufficiently described?   | /1/ | DR | As per on-site interview with representative of the DNA of Togo /iv/, it is confirmed that there is no requirement to conduct an environmental impact assessment for implementing a ICS PoA and its  | OK | OK |

|  |      |         |   |    |    |
|--|------|---------|---|----|----|
|  |      |         | <p>CPAs, and no negative impact is expected on the local environment. This is further confirmed from the Framework Law on the Environment in Togo /18.1/ and Decree No. 2006-058/PR on the conditions and procedures for carrying out Environmental Impacts Analysis and defining the categories of activities for which an EIA is required /18.2/.</p> <p>Moreover, since the environmental analysis has been addressed in the PoA-DD, it is not necessary to be mentioned in the real-case CPA-DD.</p>  |    |    |
| C.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)? | /iv/ | I<br>DR | <p>As per on-site interview with representative of the DNA of Togo /iv/, it is confirmed that there is no requirement to conduct an environmental impact assessment for implementing a ICS PoA and its CPAs, and no negative impact is expected on the local environment. This is further confirmed from the Framework Law on the Environment in Togo /18.1/ and Decree No. 2006-058/PR on the conditions and procedures for carrying out Environmental Impacts Analysis and defining the categories of activities for which an EIA is required /18.2/.</p> | OK | OK |
| C.1.3. Will the programme create any adverse environmental effects?                        | /iv/ | I<br>DR | <p>As per on-site interview with representative of the DNA of Togo /iv/, it is confirmed that no negative impact is expected on the local environment. Moreover, the environmental analysis has been</p>  | OK | OK |



|  |                                     |    |   |    |    |
|--|-------------------------------------|----|---|----|----|
|  |                                     |    | addressed in the PoA-DD, in which it also confirms no adverse environmental impacts will be caused.   |    |    |
| C.1.4. Are transboundary environmental impacts considered in the analysis?   | /1/                                 | DR | No. There are no transboundary environmental impacts.   | OK | OK |
| C.1.5. Have identified environmental impacts been addressed in the programme design?   | /1/                                 | DR | Not applicable. There is no negative impact is expected on the local environment.   | OK | OK |
| C.1.6. Does the programme comply with environmental legislation in the host country?   | /1/                                 | DR | Yes. As per on-site interview with representative of the DNA of Togo /iv/, it is confirmed that there is no requirement to conduct an environmental impact assessment for implementing an ICS PoA and its CPAs.   | OK | OK |
| <b>D. Stakeholder Comments</b><br><i>The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received</i> |                                     |    |   |    |    |
| D.1.1. Have relevant stakeholders been consulted?  | /1/                                 | DR | Yes. As per section F.1 of the PoA-DD, a stakeholder conference was held in Maritime region, by CME on 6 <sup>th</sup> February 2013.   | OK | OK |
| D.1.2. Have appropriate media been used to invite comments by local stakeholders?  | /1/<br>/28/<br>/29/<br>/30/<br>/32/ | DR | As per Part I, section F of the PoA-DD /1.2/, a stakeholder conference was held in Maritime region (the implementing location of the first real-case CPA) by PP on 6 <sup>th</sup> February 2013. The invitation letter on the stakeholder consultation meeting for the proposed PoA was posted on Togo Presse on 1st February 2013 /19.1/. The attendance list /19.2/ and the PowerPoint | OK | OK |

|   |     |         |  |    |    |
|---|-----|---------|--|----|----|
|   |     |         | presentation /19.3/ are also checked and confirmed valid. It is confirmed that 30 stakeholders participated in the consultation meeting.                                   |    |    |
| D.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?                       | /1/ | I<br>DR | Not applicable. There is no regulation/law regarding the stakeholder consultation process in the host country.   | OK | OK |
| D.1.4. Is a summary of the stakeholder comments received provided?  | /1/ | DR      | PP summarized the comments including the feedbacks from stakeholders' comments and described in section D.3 of PoA-DD.   | OK | OK |
| D.1.5. Has due account been taken of any stakeholder comments received?   | /1/ | DR      | No applicable. The general comments are positive.  | OK | OK |
| <b>E. Programme Baseline</b><br><i>The validation of the project/programme baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline</i> |     |         |  |    |    |
| <b>E.1. Baseline Methodology</b><br><i>It is assessed whether the project/programme applies an appropriate baseline methodology.</i>  |     |         |  |    |    |
| E.1.1. Does the project/programme apply an approved methodology and the correct version thereof?  | /1/ | DR      | The PoA and its CPAs applies the approved baseline and monitoring methodology AMS-II.G./Version 05.0, "Energy efficiency measures in thermal applications of non-renewable | OK | OK |

|  |     |         |   |    |    |
|--|-----|---------|---|----|----|
|  |     |         | biomass”, which is approved by the EB and also the applicable version.  |    |    |
| E.1.2. Are the applicability criteria in the baseline methodology all fulfilled?   | /1/ | I<br>DR | Yes. Applicability criteria for the baseline methodology in Part II, section B.2 of the PoA-DD are assessed by the validation team by means of document review and interview and confirmed in compliance.   | OK | OK |
| <b>E.2. Baseline Scenario Determination</b><br><i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i> |     |         |   |    |    |
| E.2.1. What is the baseline scenario?  | /1/ | DR      | As the per PoA-DD Part II, section B.4, the baseline scenario is prescribed according to the applied methodology AMS-II.G./Version 05.0, “ <i>It is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs</i> ”. | OK | OK |
| E.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?   | /1/ | DR      | Not applicable. It is prescribed in the applied methodology AMS-II.G./Version 05.0.   | OK | OK |
| E.2.3. Has the baseline scenario been determined according to the methodology?   | /1/ | DR      | Yes. It is prescribed in the applied methodology AMS-II.G./Version 05.0.  | OK | OK |
| E.2.4. Has the baseline scenario been determined using conservative assumptions where possible?  | /1/ | DR      | Not applicable. It is prescribed in the applied methodology AMS-II.G./Version 05.0.   | OK | OK |

|  |             |         |  |    |    |
|--|-------------|---------|--|----|----|
| E.2.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?                                      | /1/         | DR      | Not applicable. It is prescribed in the applied methodology AMS-II.G./Version 05.0.  | OK | OK |
| E.2.6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?  | /1/         | DR      | Not applicable. It is prescribed in the applied methodology AMS-II.G./Version 05.0.  | OK | OK |
| E.2.7. Have the major risks to the baseline been identified?   | /1/         | DR      | Not applicable. It is prescribed in the applied methodology AMS-II.G./Version 05.0.  | OK | OK |
| <b>E.3. Additionality of the Programme of Activities</b><br><i>The assessment of additionality will be validated with focus on whether the programme itself is not a likely baseline scenario.</i> |             |         |  |    |    |
| E.3.1. Has it been demonstrated that the programme is a voluntary coordinated action that would not be implemented in the absence of CDM?  | /1/<br>/iv/ | I<br>DR | As per the PoA-DD Part I, Section B.1, the PP stated that “neither law nor regulation obligates the distribution or use of ICS in Togo”. As per on-site interview with representative of the DNA of Togo /iv/, it is confirmed that there is no mandatory law/regulation or governmental campaign to adopt the ICSs by households in Togo. Moreover, the validation team confirms that there is no incentive other than CER revenues which enable the CME of the PoA and IE(s) of the CPAs to implement the project activities and sell ICSs at an affordable price to local households.<br><br>Thus the validation team confirms that the proposed PoA is a voluntary action and in the | OK | OK |

|   |     |    |   |                  |  |
|---|-----|----|---|------------------|--|
|   |     |    | absence of the CDM support, the proposed voluntary measure would not be implemented.  |                  |  |
| E.3.2. If the programme is implementing a mandatory policy/regulation, has it been demonstrated whether the policy/regulation is being enforced? If it is enforced, has it been demonstrated that the programme will lead to a higher level of enforcement? | /1/ | DR | Not applicable. There is no mandatory policy/regulation regarding the implementation of the programme activities.   | OK               | OK   |
| E.3.3. Are all assumptions stated in a transparent and conservative manner?   | /1/ | DR | Yes. All assumptions are stated in a transparent and conservative manner.   | OK               | OK   |
| E.3.4. Is sufficient evidence provided to support the relevance of the arguments made?  | /1/ | DR | Yes. Sufficient evidence is provided to support the relevance of the arguments. The validation team confirms that the proposed PoA is a voluntary action and in the absence of the CDM support, the proposed voluntary measure would not be implemented. The additionality of the PoA as a whole is therefore clearly demonstrated. | OK               | OK   |
| E.3.5. If the starting date of the project/ programme activities is before the date of validation, has sufficient evidence been provided that the incentive from the CDM was seriously considered in the decision to proceed with the programme?            | /1/ | DR | The starting date of the 1 <sup>st</sup> CPA has NOT yet been confirmed.<br><br><u>See CAR03</u>  | <del>CAR03</del> | Closed. Please refer to Table C for details. |
| <b>E.4. Additionality of CPAs</b>   |     |    |   |                  |  |
| E.4.1. Is the approach described for demonstrating additionality of a CPA in accordance with the using the procedure provided in the baseline and monitoring methodology applied?   | /1/ | DR | Yes. The additionality of CPAs is included in the eligibility criteria for inclusion of a SSC-CPA in the PoA in Part I, section B.2 of the PoA-DD and section D.5 of the real-case CPA-DD, which is in  | OK               | OK   |

|  |                 |    |  |                 |  |
|--|-----------------|----|--|-----------------|--|
|  |                 |    | accordance with the requirement of standard “ <i>Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities</i> ” (Version 03.0, EB 74 Annex 05). As per the applied baseline and monitoring methodology, the SSC additionality guideline “Guidelines on the demonstration of additionality of small-scale project activities” (Version 09, EB 68 Annex 27) is applied to demonstrate additionality.          |                 |  |
| E.4.2. Are specific criteria for demonstrating the additionality of a real-case CPA included to the PoA? | /1/             | DR | Yes. As per the section D.5 of 1 <sup>st</sup> real-case CPA-DD, the assessment of additionality of the CPA refers to discussion of eligibility criterion 5, i.e. “ <i>In reference to the “Guidelines on the demonstration of additionality of small-scale project activities”, the annual energy savings generated by each ICS sold under the framework of a CPA included under this PoA shall remain under 5% of the small-scale CDM thresholds (i.e. 5% of 180 GWhth = 9,000 MWh)</i> ”. | OK              | OK   |
| E.4.3. Is the additionality of a typical CPA demonstrated?   | /1/<br>/vii-ix/ | DR | Yes. As per the section D.5 of 1 <sup>st</sup> real-case CPA-DD, the assessment of additionality of the CPA refers to discussion of eligibility criterion 5, i.e. “ <i>In reference to the “Guidelines on the demonstration of additionality of small-scale project activities”, the annual energy savings generated by each ICS sold under the framework of a CPA included under this PoA shall remain under 5% of the small-scale CDM thresholds (i.e. 5% of 180 GWhth = 9,000 MWh)</i> ”. | <del>CL02</del> | Closed. Please refer to Table C for details. |

|   |     |    |   |    |    |
|---|-----|----|---|----|----|
|   |     |    | <p>However, since the annual energy savings per stove in the 1<sup>st</sup> CPA has not yet been fully clarified (<i>refer to CL02</i>), it is not fully confirmed whether the 1<sup>st</sup> CPA is automatically additional.</p> <p><u>See CL02</u></p>   |    |    |
| <b>E.5. Calculation of GHG Emission Reductions – Project emissions</b><br><i>It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i> |     |    |   |    |    |
| E.5.1. Has the procedure to calculate project emissions of an individual CPA been documented according to the approved methodology and in a complete and transparent manner?  | /1/ | DR | <p>Not applicable. According to the applied methodology AMS-II.G./Version 05.0, the emission reductions (<math>ER_y</math>) by a CPA under the PoA during the crediting period are directly calculated as follows:</p> $ER_y = B_y * f_{NRB, y} * NCV_{biomass} * EF_{projected\_fossilfuel} * N_{y,i}$ <p>There is no need to calculate the project emission separately.</p> | OK | OK |
| E.5.2. Have conservative assumptions been used when calculating the project emissions?  | /1/ | DR | <p>Not applicable. As described above, there is no need to calculate the project emission separately.</p>   | OK | OK |
| E.5.3. Are uncertainties in the project emission estimates properly addressed?  | /1/ | DR | <p>Not applicable. As described above, there is no need to calculate the project emission separately.</p>   | OK | OK |



|  |     |    |   |    |    |
|--|-----|----|---|----|----|
| <b>E.6. Calculation of GHG Emission Reductions – Baseline emissions</b><br><i>It is assessed whether the procedure for calculating baseline emissions is according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified</i> |     |    |   |    |    |
| E.6.1. Has the procedure to calculate baseline emissions of an individual CPA been documented according to the approved methodology and in a complete and transparent manner?  | /1/ | DR | <p>Not applicable. According to the applied methodology AMS-II.G./Version 05.0, the emission reductions (<math>ER_y</math>) by a CPA under the PoA during the crediting period are directly calculated as follows:</p> $ER_y = B_y * f_{NRB,y} * NCV_{biomass} * EF_{projected\_fossilfuel} * N_{y,i}$ <p>There is no need to calculate the baseline emission separately.</p> | OK | OK |
| E.6.2. Have conservative assumptions been used when calculating the baseline emissions?  | /1/ | DR | Not applicable. As described above, there is no need to calculate the baseline emission separately.   | OK | OK |
| E.6.3. Are uncertainties in the baseline emission estimates properly addressed?  | /1/ | DR | Not applicable. As described above, there is no need to calculate the baseline emission separately.   | OK | OK |
| <b>E.7. Calculation of GHG Emission Reductions – Leakage</b><br><i>It is assessed whether the procedure for calculating leakage is according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>                      |     |    |   |    |    |

|  |              |         |   |                                    |  |
|--|--------------|---------|---|------------------------------------|--|
| E.7.1. Has the procedure to calculate leakage emissions of an individual CPA been documented according to the approved methodology and in a complete and transparent manner?                                       | /1/          | DR      | As discussed above, a default value of 0.95 could be applied to adjust $B_{old}$ to account for leakages, according to the applied methodology AMS-II.G./Version 05.0.  | OK                                 | OK   |
| E.7.2. Have conservative assumptions been used when determining the procedure to be used to calculate the leakage emissions?<br><br>E.7.3. Are uncertainties in the leakage emission estimates properly addressed? | /1/<br>/iii/ | I<br>DR | For the 1 <sup>st</sup> CPA, through document review and on-site interview with the representative of the CME /i/, the validation team confirms that the ICSs will be newly purchased, and no ICS will be transferred from or to any other CPA(s). Leakage from equipment transfer does not need to be considered, as per the applied methodology AMS-II.G./Version 05.0.<br><br>The validation team confirms that conservative assumptions have been used for the calculation of the leakage emissions and there is no need to further address uncertainties in the leakage emission estimation. | OK                                 | OK   |
| <b>E.8. Emission Reductions</b><br><i>The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.</i>   |              |         |   |                                    |  |
| E.8.1. Does the PoA-DD provide a clear and correct way of calculating the emission reductions from each CPA?   | /1/          | DR      | Yes. The emission reductions (ER) spreadsheet for the calculation of the estimated CER was checked by the validation team and confirmed complete and traceable. Therefore, the validation team confirms that the calculations of GHG  | <del>CL04</del><br><del>CL05</del> | Closed. Please refer to Table C for details. |

|  |     |    |   |    |    |
|--|-----|----|---|----|----|
|  |     |    | <p>emission reductions are in accordance with the applied methodology AMS-II.G./Version 05.0. However, it is found that not all the applied assumptions are based on the most recent data available at the time of submission of the PoA-DD &amp; real-case CPA-DD to the DOE for validation (i.e. GSP on 13<sup>st</sup> March 2013).</p> <p><b><u>CL04</u></b></p> <p>It was found during on-site visit that the SIE-Togo 2007 Report is not the latest version at the time of submission of the PoA-DD &amp; real-case CPA-DD to the DOE for validation for the determination of Conversion factor wood/charcoal. Please update accordingly.</p> <p><b><u>CL05</u></b></p> <p>It is found during on-site interview that the efficiency of baseline stoves (e.g. iron charcoal stove) is higher than the adopted default value of 10% as per the applied methodology AMS-II.G./Version 05, which is considered not conservative. Please clarify with relevant document evidences.</p> |    |    |
| <b>E.9. Monitoring Methodology</b><br><i>It is assessed whether the project applies an appropriate monitoring methodology.</i> |     |    |   |    |    |
| E.9.1. Is the monitoring plan documented according to  | /1/ | DR | Yes. The monitoring plan is based on the applied  | OK | OK |

|  |     |    |   |    |    |
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| the approved methodology and in a complete and transparent manner?   |     |    | monitoring methodology AMS-II.G./Version 05.0 and is confirmed fully complete and transparent.  |    |    |
| E.9.2. Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?           | /1/ | DR | Yes. According to the monitoring plan, it states that <i>“all documents, lists and questionnaires produced during monitoring shall be saved under electronic format with physical copies securely stored as evidences under the direct responsibility of the data manager and the supervision of the monitoring manager and should be kept and archived electronically for two years after the end of the crediting period or the last issuance of CERs, whichever occurs later.”</i> | OK | OK |
| <b>E.10. Monitoring of Plan</b><br><i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>  |     |    |   |    |    |
| E.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the programme boundary during the crediting period? | /1/ | DR | Yes. Electronic databases will be operated and maintained by the CME.   | OK | OK |
| E.10.2. Are the choices of project GHG indicators reasonable and conservative?   | /1/ | DR | Yes. The choices of project GHG indicators are in line with the applied methodology AMS-II.G./Version 05.0, and confirmed reasonable and conservative.  | OK | OK |
| E.10.3. Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?  | /1/ | DR | Yes. The measurement method is clearly stated for each GHG value to be monitored.   | OK | OK |
| E.10.4. Is the measurement equipment described and deemed appropriate?   | /1/ | DR | Yes. The measure equipment is described and follows the standard measurement procedures. It is deemed appropriate.  | OK | OK |

|   |     |    |   |                        |  |
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| E.10.5. Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?   | /1/ | DR | QA/QC procedures are described to avoid erroneous measurements. However, the measurement accuracy is not described in the monitoring plan.<br><br><b><u>CL06</u></b><br>Please describe the accuracy and calibration requirements of the equipments used in the monitoring. | <b><del>CL06</del></b> | Closed. Please refer to Table C for details. |
| E.10.6. Is the measurement interval identified And deemed appropriate?  | /1/ | DR | Yes. The monitoring frequencies are identified as annually, which are confirmed appropriate as per the applied methodology AMS-II.G./Version 05.0.  | OK                     | OK   |
| E.10.7. Is the registration, monitoring, measurement and reporting procedure defined?   | /1/ | DR | Yes. The CME will be responsible for registration, monitoring and reporting.  | OK                     | OK   |
| E.10.8. Are procedures identified for maintenance of monitoring equipment and installations? Are the calibration intervals being observed?  | /1/ | DR | The maintenance of the monitoring equipment follows the standard procedures (e.g. the WBT Protocol, etc.).<br><br><b><u>See CL06</u></b>  | <b><del>CL06</del></b> | Closed. Please refer to Table C for details. |
| E.10.9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)  | /1/ | DR | Yes. Electronic databases will be operated and maintained by the CME.   | OK                     | OK   |
| <b>E.11. Monitoring of Sustainable Development Indicators/ Environmental Impacts</b><br><i>It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.</i> |     |    |   |                        |  |

|   |                   |         |   |              |  |
|---|-------------------|---------|---|--------------|--|
| E.11.1. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?  | /1/               | I<br>DR | No. It is not required in host country.   | OK           | OK   |
| E.11.2. Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?   | /1/               | DR      | No. Data concerning environmental, social and economic impacts are not included in the monitoring plan.   | OK           | OK   |
| E.11.3. Are the sustainable development indicators in line with stated national priorities in the Host Country?   | /1/<br>/iv/       | DR      | The validation team interviewed the representative of the DNA of Togo /iv/ during OSV and confirmed that the sustainable development in social, environmental and economic aspects could be achieved by implementation of the PoA. The LoA from the DNA of Togo has been received for officially confirming the PoA's assistance to achieve the sustainable development of Togo.<br><br><u>Please refer to <b>CAR01</b></u> | <b>CAR01</b> | Closed. Please refer to Table C for details. |
| <b>E.12. Management System and Quality Assurance for Monitoring and Reporting</b><br><i>It is checked that programme implementation is properly prepared for and that critical arrangements are addressed</i> |                   |         |   |              |  |
| E.12.1 Is the authority and responsibility of overall project management clearly described?   | /1/ /16/<br>/iii/ | I<br>DR | Yes. During the on-site interview with the CME /i/, the CME will be in charge of and responsible for the monitoring of each CPA. The organization chart of the CME /16/ was checked for confirming its management structure.<br><br><u><b>CL07</b></u>  | <b>CL07</b>  | Closed. Please refer to Table C for details. |

|  |     |    |  |    |    |
|--|-----|----|--|----|----|
|  |     |    | Please describe the responsibilities of each monitoring team member.   |    |    |
| E.12.2 Are procedures identified for training of monitoring personnel?   | /1/ | DR | Yes. Procedures for training of monitoring personnel are identified.   | OK | OK |
| E.12.3 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?        | /1/ | DR | Yes. Procedures are identified for emergency preparedness for cases where emergencies can cause unintended emissions.        | OK | OK |
| E.12.4 Are procedures identified for review of reported results/data?  | /1/ | DR | Yes. Procedures are identified for review of reported results/data.  | OK | OK |
| E.12.5 Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting? | /1/ | DR | Yes. Procedures are identified for corrective actions in order to provide for more accurate future monitoring and reporting. | OK | OK |

| <b>Table C: List of Requests for Corrective Action (CAR) and Clarification (CL)</b> |               |                             |  |  |  |
|---|---------------|-----------------------------|--|--|--|
| <b>No.</b>  | <b>CAR/CL</b> | <b>Observation (CAR/CL)</b> | <b>Reference</b>   | <b>Summary of project owner response</b>   | <b>Validation team conclusion</b>  |
| 1.  | √             |                             | <b><u>CAR01</u></b><br>Please provide the Letters of Approval (LoAs) from the host country and the Annex I country for validation.   | Table A<br>3<br>Both the LoA from Togo and the LoA from the United Kingdom of Great Britain and Northern Ireland have been provided.                                       | The LoA from the DNA of Togo has been received and confirmed OK.<br><br>The LoA from the United Kingdom of Great Britain and Northern Ireland has been received and confirmed OK.<br><br>CAR is therefore closed.  |
| 2.  | √             |                             | <b><u>CAR02</u></b><br>Please provide the Modalities of Communication (MoC) form for validation.   | Table B<br>A.2.1<br>The Modalities of Communication (MoC) are under way.   | The MoC has been received. The validation team confirms that the applicable latest template has been employed by the project participant for the MoC. The MoC has been received from the CME with whom DOE has the contractual relationship. All the personal who have duly signed the MoC have been confirmed from email communication with the project participants.<br><br>CAR is therefore closed.   |
| 3.  | √             |                             | <b><u>CAR03</u></b><br>Please determine the starting date of the 1 <sup>st</sup> CPA in accordance with the requirement in the Glossary CDM terms and provide relevant document evidence(s). | Table B<br>B.1.1<br>E.3.5<br>The starting date of the first CPA is defined as the date of the 1 <sup>st</sup> order of ICSs purchase, i.e. 3 <sup>rd</sup> September 2013. | The provided order of ICS is checked and confirmed valid. Based on on-site interview and document check, the validation team confirms that the date of the 1 <sup>st</sup> order of ICSs purchase (i.e. 3 <sup>rd</sup> September 2013) is the earliest date at which the real action of the 1 <sup>st</sup> real-case CPA begins. Thus the starting date the 1 <sup>st</sup> CPA is confirmed to be 3 <sup>rd</sup> September 2013.<br><br>Moreover, the validation team also confirms that it is after the GSP of the PoA-DD (i.e. 13 <sup>th</sup> March 2013) and hence the starting date of CPA is valid. |



|    |   |   |  |                  |   |   |
|----|---|---|--|------------------|---|---|
|    |   |   |  |                  |   | CAR is therefore closed.  |
| 4. | √ |   | <b>CAR04</b><br>Please determine the starting date of the crediting period of the 1 <sup>st</sup> real-case CPA in accordance with the requirements in the CDM Project Standard. | Table B<br>B.1.1 | The starting date of the crediting period of the 1 <sup>st</sup> real case CPA has been updated to 01/08/2014 (implementation date), or on the date of inclusion of the CPA in the PoA, whichever is later, in accordance with the requirements in the CDM Project Standard.  | OK. The revised starting date of the crediting period is confirmed reasonable and in line with the CDM Project Standard.<br><br>CAR is therefore closed.  |
| 5. |   | √ | <b>CL01</b><br>Please provide document evidence(s) for the technical lifetime of the ICS adopted in the first real-case CPA.   | Table B<br>A.3.2 | <p>The technical lifetime of the ICS is between 3 to 5 years. Please see the document evidence "Global Alliance for Clean Cookstoves: Ghana Market Assessment, 2012" p41.</p> <p>Therefore a lifetime of 3 to 5 years is adopted.</p> <p>An after sale service/maintenance team will be set up and a sample of each stove age class will be visited annually. When maintenance team finds the ICS to be not operating, the ceramic liner will be replaced for half the price of the ICS. A replacement agreement will be signed in which following information will be collected and recorded in electronic database:</p> <ul style="list-style-type: none"> <li>- serial number of ICS,</li> <li>- households contact details,</li> <li>- date of first purchase</li> <li>- and date of replacement.</li> </ul> <p>Every household will engage itself to replace the ceramic part at half price of finish product at the end of the 3 to 5 years</p> | <p>The report «Global Alliance for Clean Cookstoves: Ghana Market Assessment 2012» is checked. The lifetime of the so-called "Gyapa" type stove is indicated as 3-5 years. The provided link is checked and it is confirmed that the ICS adopted in the first real-case CPA is identical to the one mentioned in the reference. Moreover, the name of the ICS is corrected to be "jiko" in the revised PoA-DD and CPA-DD.</p> <p>The description about replacement arrangement is checked, which can be confirmed from the ICS Sale Agreement. A template of ICS Replacement Monitoring Sheet is available for monitoring in the future.</p> <p>The description of the efficiency monitoring is conformed consistent to that in the monitoring report in the PoA-DD.</p> <p>CL is therefore closed.</p> |

|    |  |  |   |                                    |  |   |
|----|--|--|---|------------------------------------|--|---|
|    |  |  |   |                                    | <p>if it is found to be not operating by the maintenance team. It is included in sale agreement replacement conditions.</p> <p>Regarding efficiency of ICS, it will be monitored per age class from 1 to 5 years. If it is demonstrated during monitoring that efficiency does not drop significantly, a monitoring every two years may be chosen such as described in PoA-DD.</p> <p>1) Document evidence accessible via the following link is provided showing that Gyapa stove is jiko type stove, same as the one distributed under the project:<br/> <a href="http://www.hedon.info/item11443&amp;trackerId=9&amp;show=view&amp;reloff=8&amp;cant=411&amp;status=o&amp;trackerId=9&amp;sort_mode=f_394_asc">http://www.hedon.info/item11443&amp;trackerId=9&amp;show=view&amp;reloff=8&amp;cant=411&amp;status=o&amp;trackerId=9&amp;sort_mode=f_394_asc</a></p> <p>2) Information provided in ICS sale agreement, and in CPA-DD has been made consistent with the one provided in CL01. Footnote 7 in CPA-DD has been corrected.</p> |   |
| 6. |  |  | <p><b>CL02</b><br/>Please provide more explanation for the determination of annual energy savings per stove in the 1<sup>st</sup> real-case CPA-DD. Moreover, the value of annual energy savings per stove in the CPA-DD and the calculation spreadsheet is found different. Please</p> | <p>Table B<br/>A.5.2<br/>E.4.3</p> | <p>Value of annual energy savings per stove in first real case CPA-DD has been revised and is now consistent with excel spread sheet.</p> <p>Based on the study done by Research Center of Engineering Social Sciences of Togo, table 46 p 73 (CRISTO, 2007), efficiency of the baseline stove is calculated to be 15.5% therefore a value of 50% energy saving is used:<br/> <math>1 - (15.5\% / 30.9\%) = 50\%</math></p>  | <p>The report “Investigation of domestic consumption energies in Togo” by CRISTO dated 2007 is checked. It is confirmed that the Asuto stove (same model as the one distributed under the PoA) is reducing from 50 to 60% the consumption in terms of quantity compared to the consumption of traditional iron charcoal stove.</p> <p>It is considered conservative to use of lower end of the range (i.e. 50%) in the calculation.</p> |

|    |  |   |   |               |  |   |
|----|--|---|---|---------------|--|---|
|    |  |   | clairify.   |               | <p>Energy savings per stove per year is therefore equal to:<br/> <math>50\% * M_{\text{woody\_biomass,app}} * \text{NCV} =</math><br/> <math>50\% * 5.18 * 4.167 = 10.8 \text{ MWh/y}</math></p> <p>Please see excel calculation spreadsheet.</p>  | CL is therefore closed.   |
| 7. |  | √ | <p><b>CL03</b><br/> It is found that “GPS coordinates of implantation for built-in stoves” may be recorded instead of serial number. Please clarify how this will ensure unique identification of a stove if it is moved to different place.</p>  | Table B A.6.1 | <p>Built in stoves will not be part of the project thus it has been removed.</p>   | <p>OK. The clarification as well as the revised PoA-DD is checked. The description regarding built in stoves has been removed.</p> <p>CL is therefore closed.</p>   |
| 8. |  | √ | <p><b>CL04</b><br/> It was found during on-site visit that the SIE-Togo 2007 Report is not the latest version at the time of submission of the PoA-DD &amp; real-case CPA-DD to the DOE for validation for the determination of Conversion factor wood/charcoal. Please update accordingly.</p> | Table B E.8.1 | <p>The report has been updated to the one published in 2009. Report is provided.</p>   | <p>OK. The SIE Togo 2009 report is received, in which the value of the conversion factor wood/charcoal is the same as in the SIE Togo 2007 report. The revised PoA-DD and CPA-DD are also checked, in which the reference has been updated.</p> <p>CL is therefore closed.</p>  |
| 9. |  | √ | <p><b>CL05</b><br/> It is found during on-site interview that the efficiency of baseline stoves (e.g. iron charcoal stove) is higher than the adopted default value of 10% as per the applied methodology AMS-</p>  | Table B E.8.1 | <p>Based on the study done by Research Center of Engineering Social Sciences of Togo table 46 p 73, the Asuto stove (same model as the one distributed under the PoA) is reducing from 50 to 60% the consumption in terms of quantity compared to the consumption of traditional iron charcoal stove so called Malagasy Stove.</p> | <p>The report “Investigation of domestic consumption energies in Togo” by CRISTO dated 2007 is checked. It is confirmed that the Asuto stove (same model as the one distributed under the PoA) is reducing from 50 to 60% the consumption in terms of quantity compared to the consumption of traditional iron charcoal stove so called Malagasy Stove.</p> |

|     |                |             |  |                             |   |  |  |                |             |  |  |  |
|-----|----------------|-------------|--|-----------------------------|---|--|--|----------------|-------------|--|--|--|
|     |                |             | II.G./Version 05, which is considered not conservative. Please clarify with relevant document evidences.           |                             | <p>Based on the following calculation, the efficiency of the baseline stove in the 1<sup>st</sup> CPA is conservatively estimated at 15.5%:</p> <p>Estimation of the consumption of the ICS:<br/>5.18*50% = 2.59 tonnes of woodfuel per year</p> <p>Based on the WBT done by the University of Lomé, ICS has an efficiency of 30.9%:<br/>X/2.59 = 30.9%<br/>X= 2.59*0.309= 0.80031</p> <p>The efficiency of the baseline stove is therefore:<br/><br/>0.80031/5.18 = 15.5%</p> <p>Moreover, during its interview, local expert (Mr Robil Nassoma) mentioned that at Energy Ministry a value of 15% is used. Additionally he mentioned the efficiency of baseline stove to be between 10 and 15%. Therefore, 15.5% is a conservative estimation.</p> | <p>By checking information online (<a href="http://www.hedon.info/View+Stove?itemId=9348">http://www.hedon.info/View+Stove?itemId=9348</a>), it is confirmed that so called Malagasy Stove is traditional iron stove, which is similar to the baseline stoves observed during on-site visit at local households.</p> <p>During on-site interview, the validation team was informed that the average efficiency of baseline stoves (e.g. iron charcoal stove) is around 15%.</p> <p>Use of lower end of the range (i.e. 50%) is also considered conservative in the calculation of efficiency of the baseline stove for the 1<sup>st</sup> CPA which only targeted urban household relying on charcoal for cooking.</p> <p>CL is therefore also closed.</p> |  |                |             |  |  |  |
| 10. |                | √           | <b>CL06</b><br>Please describe the accuracy and calibration requirements of the equipments used in the monitoring. | Table B<br>E.10.5<br>E.10.8 | <p>Accuracy and calibration requirements of the equipment defined in WBT/KPT/CCT protocol by the Partnership for Clean Indoor Air should be followed and will be reflected in monitoring report<sup>3</sup>. It has been included in PoA and CPA-DD.</p>  | <p>The revised PoA-DD and CPA-DD are checked. The mentioned clarification is added.</p> <p>According to the link of WBT/KPT/CCT protocol, the following information has been confirmed:</p> <table><tr><td></td><td>Accuracy level</td><td>Calibration</td></tr><tr><td></td><td></td><td></td></tr></table>   |  | Accuracy level | Calibration |  |  |  |
|     | Accuracy level | Calibration |  |                             |   |  |  |                |             |  |  |  |
|     |                |             |  |                             |   |  |  |                |             |  |  |  |

<sup>3</sup> <http://www.pciaonline.org/testing>

|            |   |                  |   |                |  |   |  |  |                  |            |   |               |            |               |               |            |                     |               |
|------------|---|------------------|---|----------------|--|---|--|--|------------------|------------|---|---------------|------------|---------------|---------------|------------|---------------------|---------------|
|            |   |                  |   |                | <p>Required accuracy level has been included in the monitoring plan of PoA and CPA-DD.</p> <p>Regarding calibration requirements, since no any indication is provided in the WBT/CCT/KPT protocol and no any specification of the local/national standards, the manufacturer's indication of the equipment should be followed. In case no manufacturer's specifications is provided, measuring equipment will be calibrated at the beginning of the test campaign and will be regularly checked (weekly basis along the monitoring period). Description has been revised in the monitoring plan.</p> | <table><tr><td></td><td></td><td><b>frequency</b></td></tr><tr><td><b>WBT</b></td><td>Scale: ±1 gram<br/>Thermometer: 1/10 of a degree</td><td>Not indicated</td></tr><tr><td><b>CCT</b></td><td>Scale: 1 gram</td><td>Not indicated</td></tr><tr><td><b>KPT</b></td><td>Scale: 0.1 – 0.5 kg</td><td>Not indicated</td></tr></table> <p>The accuracy levels for the involved monitoring equipments have been indicated according to the WBT/KPT/CCT protocol.</p> <p>The provided description of calibration is considered necessary</p> <p>CL is therefore closed.</p> |  |  | <b>frequency</b> | <b>WBT</b> | Scale: ±1 gram<br>Thermometer: 1/10 of a degree | Not indicated | <b>CCT</b> | Scale: 1 gram | Not indicated | <b>KPT</b> | Scale: 0.1 – 0.5 kg | Not indicated |
|            |   | <b>frequency</b> |   |                |  |   |  |  |                  |            |   |               |            |               |               |            |                     |               |
| <b>WBT</b> | Scale: ±1 gram<br>Thermometer: 1/10 of a degree | Not indicated    |   |                |  |   |  |  |                  |            |   |               |            |               |               |            |                     |               |
| <b>CCT</b> | Scale: 1 gram                                   | Not indicated    |   |                |  |   |  |  |                  |            |   |               |            |               |               |            |                     |               |
| <b>KPT</b> | Scale: 0.1 – 0.5 kg                             | Not indicated    |   |                |  |   |  |  |                  |            |   |               |            |               |               |            |                     |               |
| 11.        |   | √                | <b>CL07</b><br>Please describe the responsibilities of each monitoring team member. | Table B E.12.1 | <p>Responsibilities of each monitoring team member has been described and included in PoA-DD and CPA-DD.</p>   | <p>OK. The revised PoA-DD and CPA-DD are checked. The detailed responsibilities of each monitoring team member are described and confirmed valid and reasonable.</p> <p>CL is therefore closed.</p>   |  |  |                  |            |   |               |            |               |               |            |                     |               |

## Appendix B

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### CERTIFICATES OF COMPETENCE

## Qualification

Hu, Feng /

### Emission Trading

#### United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:

(Zugelassen)

☒ ja

Qualification Level: Lead Auditor

(Qualifikationsstufe)

External:

(Externer)

☐ ja

Add. reviewer:

(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:

(EAC Branchen)

CDM 01 - Energy industries (renewable - / non-renewable sources)

CDM 13 - Waste handling and disposal

CDM 03 - Energy demand

Add. qualification:

(zus. Qualifikation)

First Appointment:

(Erstberufung)

01/23/2011

Valid to:

(Gültig bis)

12/25/2014

Remarks:

Valid for TA 1.2, 13.1, 3.1

Languages:

Chinese

English

German

### Experience Exchange

Date

Location

Remarks

Accreditation(s)

2010-12-21 Beijing

GC CDM Auditor Experience Exchange, Beijing, 2010-12-21to23

United Nations Framework Convention on Climate Change

### Monitoring

Latest Monitoring:

(letzte Beurteilung)

Next

Monitoring:

(nächste  
Beurteilung)

Remarks:

## History of scope allocation

Date: 2013-06-24  
Change: EAC CDM added  
By: Henri Phan  
Reason: appointed for TA 3.1 on 22/06/2013

Date: 2011-12-27  
Change: EAC CDM added  
By: Manfred Brinkmann  
Reason: Valid for TA1.2, 13.1

Date: 2011-01-24  
Change: EAC CDM added  
By: Manfred Brinkmann  
Reason: Valid for TA 1.2

## History

|           |                        |                           |
|-----------|------------------------|---------------------------|
| Created:  | 11/01/2010 11:53:12 AM | Feng Hu/Hk/Chn/TUV        |
| Modified: | 06/24/2013 12:36:43 PM | Henri Phan/Chn/TUV        |
|           | 03/17/2012 01:54:50 AM | Praveen Urs/Chn/TUV       |
|           | 12/27/2011 06:54:32 PM | Manfred Brinkmann/Jpn/TUV |
|           | ZE9                    |                           |
|           | 12/27/2011 06:54:13 PM |                           |
|           | ZE9                    |                           |
|           | 12/27/2011 06:51:29 PM |                           |
|           | ZE9                    |                           |
|           | 01/24/2011 10:10:57 AM |                           |
|           | ZE9                    |                           |
|           | 11/01/2010 11:53:39 AM |                           |

## Export to ICMS

Last Export:



## Qualification

LIU, Jia /

### Emission Trading

#### United Nations Framework Convention on Climate Change

Auditor No.:  
(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level: Auditor  
(Qualifikationsstufe)

External:  
(Externer)

☐ ja

Add. reviewer: ☐ yes  
(Zusätzlicher Prüfer)

EAC Scopes:  
(EAC Branchen)

CDM 01 - Energy industries (renewable - / non-renewable sources)

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

09/10/2012

Valid to:  
(Gültig bis)

09/09/2015

Remarks:

T.A 1.2

Languages:

Chinese simplified  
English  
Cantonese

### Experience Exchange

Date

Location

Remarks

Accreditation(s)

### Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next  
Monitoring:  
(nächste  
Beurteilung)

Remarks:

[View / Edit Monitoring](#)

## History of scope allocation

Date: 2012-09-28  
Change: EAC CDM added  
By: Praveen Urs  
Reason:

### History

|           |                        |                        |
|-----------|------------------------|------------------------|
| Created:  | 09/10/2012 03:25:09 PM | Jasmine Liu/Hk/Chn/TUV |
| Modified: | 09/28/2012 04:33:30 PM | Praveen Urs/Chn/TUV    |
|           | 09/10/2012 03:26:18 PM | Jasmine Liu/Hk/Chn/TUV |

### Export to ICMS

Last Export:

## Qualification

Hai, Harold /

### Emission Trading

#### United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:

(Zugelassen)

☒ ja

Qualification Level: Lead Auditor

(Qualifikationsstufe)

External:

(Externer)

☐ ja

Add. reviewer:

(Zusätzlicher Prüfer)

☒ yes

EAC Scopes:

(EAC Branchen)

CDM 13 - Waste handling and disposal  
CDM 01 - Energy industries (renewable - / non-renewable sources)  
CDM 06 - Construction  
CDM 03 - Energy demand

Add. qualification:

(zus. Qualifikation)

First Appointment:

(Erstberufung)

12/19/2007

Valid to:

(Gültig bis)

09/24/2015

Remarks:

TA1.2 - Renewable Energies  
TA 3.1- Energy Demand  
TA 13.1- Waste handling & disposal  
TA 6.1 - Construction

Languages:

Chinese  
English  
Mandarin  
Chinese simplified  
Chinese traditional

### Experience Exchange

Date

Location

Remarks

Accreditation (s)

2010-12-21 Beijing

United Nations Framework Convention on Climate Change

GC CDM Auditor Experience Exchange, Beijing, 2010-12-21to23

## Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next  
Monitoring:  
(nächste  
Beurteilung)

Remarks:

## History of scope allocation

Date: 2013-04-27  
Change: EAC CDM added  
By: Henri Phan  
Reason:

Date: 2012-06-29  
Change: EAC CDM added  
By: Praveen Urs  
Reason:

Date: 2011-01-04  
Change: EAC CDM added; Non-EAC CDM 01 Energy Industries removed  
By: Manfred Brinkmann  
Reason:

Date: 2010-04-15  
Change: CDM 01 Energy Industries added  
By: Manfred Brinkmann  
Reason: Scope 1: limited to renewable energies except biomass power generation / geothermal

Date: 2007-12-20  
Change: EAC CDM added  
By: Manfred Brinkmann  
Reason:

## History

|           |                        |                       |
|-----------|------------------------|-----------------------|
| Created:  | 12/19/2007 02:32:34 PM | Harold Hai/Hk/Chn/TUV |
| Modified: | 04/27/2013 10:10:25 AM | Henri Phan/Chn/TUV    |
|           | 04/15/2013 11:32:45 AM | Harold Hai/Hk/Chn/TUV |
|           | 11/09/2012 04:11:16 PM | Harold Hai/Hk/Chn/TUV |
|           | 09/26/2012 06:21:49 PM |                       |
|           | 09/24/2012 11:49:37 AM |                       |
|           | 06/29/2012 03:42:54 PM |                       |
|           | 03/19/2012 07:31:44 PM |                       |
|           | 01/31/2011 09:25:37 AM |                       |
|           | 01/04/2011 03:16:31 PM |                       |
|           | ZE9                    |                       |
|           | 01/04/2011 03:16:11 PM |                       |
|           | ZE9                    |                       |
|           | 01/04/2011 03:15:12 PM |                       |
|           | ZE9                    |                       |
|           | 09/13/2010 02:53:26 PM |                       |

ZE9

## Export to ICMS

Last Export:

| Qualification           |
|-------------------------|
| Abdoulaye Robil Nassoma |

## Emission Trading

### United Nations Framework Convention on Climate change


|            |                                     |                      |              |
|------------|-------------------------------------|----------------------|--------------|
| Appointed: | <input checked="" type="checkbox"/> |                      |              |
|            |                                     | Qualification level: | Local Expert |
| External:  | <input checked="" type="checkbox"/> |                      |              |
| Scopes:    |                                     |                      |              |

|                    |                                     |
|--------------------|-------------------------------------|
| Scope:             |                                     |
| Languages:         | French English                      |
| Legal requirements | <input checked="" type="checkbox"/> |

### Validity:

|                   |               |           |               |
|-------------------|---------------|-----------|---------------|
| First Appointment | 23 April 2013 | Valid To: | 22 April 2016 |
|-------------------|---------------|-----------|---------------|

### Approved By:

|                |   |
|----------------|---|
| Mr. Henri Phan |  |
|----------------|---|

### History of Scope Allocation:

|         |  |
|---------|--|
| Date:   |  |
| Change: |  |
| By:     |  |
| Reason: |  |

## Qualification

Li, Lixin /

### Emission Trading

#### United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level: Lead Auditor  
(Qualifikationsstufe)

External:  
(Externer)

☐ ja

Add. reviewer: ☒ yes  
(Zusätzlicher Prüfer)

EAC Scopes:  
(EAC Branchen)

CDM 01 - Energy industries (renewable - / non-renewable sources)

CDM 03 - Energy demand

CDM 02 - Energy distribution

CDM 04 - Manufacturing industries

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

06/09/2013

Valid to:  
(Gültig bis)

05/09/2016

Remarks:

Appointed as Technical Reviewer for TA 1.1, 1.2, 2.1, 2.2, 3.1  
TA 4.5

Languages:

### Experience Exchange

Date

Location

Remarks

Accreditation(s)

2010-12-21 Beijing

United Nations Framework Convention on Climate Change

GC CDM Auditor Experience Exchange, Beijing, 2010-12-21 to 23

### Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next  
Monitoring:

(nächste  
Beurteilung)

Remarks:

## History of scope allocation

Date: 2012-03-10  
Change: EAC CDM, CDM added  
By: Praveen Urs  
Reason:

Date:  
Change:  
By:  
Reason:

Date:  
Change:  
By:  
Reason:

Date: 2010-11-08  
Change: EAC CDM, CDM added  
By: Manfred Brinkmann  
Reason: Appointed as Technical Reviewer for

## History

|           |                        |                     |
|-----------|------------------------|---------------------|
| Created:  | 08/13/2010 11:09:24 AM | Lixin Li/Bj/Chn/TUV |
| Modified: | 12/11/2013 05:38:34 PM | Henri Phan/Chn/TUV  |
|           | 07/06/2012 04:55:01 PM | Lixin Li/Bj/Chn/TUV |
|           | 03/10/2012 08:33:44 PM | Lixin Li/Bj/Chn/TUV |
|           | 02/12/2012 06:12:39 PM |                     |
|           | 11/15/2010 04:02:03 PM |                     |
|           | 11/15/2010 04:01:56 PM |                     |
|           | 11/08/2010 09:36:09 AM |                     |
|           | ZE9                    |                     |
|           | 11/08/2010 09:28:17 AM |                     |
|           | ZE9                    |                     |
|           | 11/08/2010 09:28:07 AM |                     |
|           | ZE9                    |                     |
|           | 11/08/2010 09:27:39 AM |                     |
|           | ZE9                    |                     |
|           | 08/13/2010 11:09:41 AM |                     |

## Export to ICMS

Last Export: