



VALIDATION REPORT

for the CDM Programme of Activities

Renewable Energy CDM Programme of Rwanda (RECPR)

in

Rwanda

Report No. 01 997 9105076552

Version No.03.3, 2014-07-31

Designated Operational Entity (DOE)

TÜV Rheinland (China) Ltd

Unit 707, AVIC Building, No. 10B, Central Road, East 3rd Ring Road,
Chaoyang District, Beijing 100022,
People's Republic of China.

Tel.: +86 10 65 66 66 60 (ext.169)

FAX: +86 1065 66 66 67

E-mail: doe@chn.tuv.com

I. PoA description:

PoA title:	Renewable Energy CDM Programme of Rwanda (RECPR)		Report No.: 01 997 9105076552
Host Country:	Rwanda		Current revision No.: 03.3
Methodology:	ACM0002, Version 15.0, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"; AMS-I.D, Version 17.0, "Grid-connected Renewable Electricity Generation"; AMS-I.F, Version 2.0, "Renewable Electricity Generation for Captive use and Mini-grid"	<input checked="" type="checkbox"/> Large Scale <input checked="" type="checkbox"/> Small Scale	Date of current revision: 2014-07-31
			Date of first issue: 2013-10-31
Annual average emission reductions:			Not applicable for PoA itself
GHG reducing measure/technology:	Displacing fossil fuel based grid power generation with renewable hydropower, solar photovoltaic and geothermal energy		

Party	Project Participants	Party considered a project participant	Contract project participant
Rwanda (Host)	DG Works Ltd	No	<input checked="" type="checkbox"/>

II. Validation Team:

Validation Team			Role									
Full name	Affiliation TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Team leader	Acting Team Leader	Local Expert	Team Member (Auditor)	Technical Expert	Acting Tech. Expert	Trainee Auditor	Technical Reviewer	Expert to TR	Trainee TR
MA Jiandong	China	1.1, 1.2, 4.5	X									
Mr. Lixin Li	China	1.1, 1.2, 2.1, 2.2, 3.1, 4.5	X									
WU Ze	China	1.2, 4.3, 4.5, 9.1, 13.1				X						
Eddie Balaba Mugarura	Rwanda				X							
Walter Tang	China	1.1, 1.2, 2.1, 2.2, 3.1, 4.3, 4.5, 13.1								X		

Validation Phases and Validation Status:

- ☒ Desk Review
 ☒ Follow up interviews
 ☒ Resolution of outstanding issues
☒ Corrective Actions / Clarifications Requested
 ☒ Full Approval and Submission for Registration
 ☐ 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 <input checked="" type="checkbox"/> Unrestricted distribution
Date: 2015-3-27		

Executive Summary – Validation Opinion

The Validation Team of the DOE (TÜV Rheinland (China) Ltd.), hereafter called TRC, has been assigned by 'DG Works Ltd' to perform the validation of the programme 'Renewable Energy CDM Programme of Rwanda (RECPR)'. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism. The scope of the validation is defined as an independent and objective review of the programme design document, the programme's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against CDM Validation and Verification Standard (Version 7.0), Kyoto Protocol requirements, CDM Executive Board/UNFCCC rules.

The report is based on the assessment of the programme design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, site visit, and stakeholder interviews, review of the applicable methodology and its underlying formulae and calculations.

Validation methodology and process

The validation has been performed as described in the VVS Version 7.0 and constitutes the following steps so far:

- Publication of the PoA-DD of Version 01, 22 Jun. 2013 on the UNFCCC website (from 05 Sept. 2013 to 04 Oct. 2013)
- Desk review of the PoA-DD of Version 01, 22 Jun. 2013 and the relevant documents
- On-site assessment (from 23 Sept. 2013 to 25 Sept. 2013)
- Issue of checklist with corrective action requests (CARs) and clarification requests (CLs) and the draft validation report & protocol
- Desk review of the revised PoA-DD of Version 06, 13 Nov. 2014
- Review of the proposed corrections and clarifications
- Issue of the final validation report & protocol

Validation criteria

The following CDM requirements have been considered:

- Article 12 of the Kyoto Protocol,
- Modalities and procedures for CDM (Marrakech Accords)
- Subsequent decisions by the COP/MOP and CDM Executive Board
- Host country criteria
- Criteria given to provide for consistent project operations, monitoring and reporting.

The proposed PoA is a unilateral PoA project. The host party is Rwanda and the party fulfills the participation criteria and has approved and authorized the project and the project participant i.e. CME (DG Works Ltd) for its coordination of the proposed PoA. The DNA from Rwanda confirms that the PoA assists in achieving its sustainable development.

Emission reductions attributable to the PoA (eligible CPAs of the PoA) are additional to any that would occur in the absence of the proposed eligible CPAs. Given that the PoA is implemented as designed, the CPAs are likely to achieve the emission reductions by displacing fossil fuel based grid power generation respectively with renewable hydropower energy, solar photovoltaic energy and geothermal energy.

The Validation Team did not reveal any information that indicates the PoA can be seen as a diversion of Official Development Assistance (ODA) funding towards Rwanda.

The monitoring arrangements described in the monitoring plan are feasible within the project design and it is TRC's opinion that the CME is able to implement the monitoring plan.

The validation protocol describes a total of 10 findings which include:

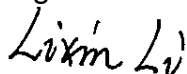
- 9 Corrective Action Requests (CARs);
- 4 Clarification Requests (CLs);
- 0 Forward Action Requests (FARs).

The TRC concludes that the CDM Programme of Activity "Renewable Energy CDM Programme of Rwanda (RECPR)" in Rwanda, as described in the PoA-DD (Version 06, 13 Nov. 2014), meets all relevant requirements of the UNFCCC for CDM project activities 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.

The selected baseline and monitoring methodology ACM0002, Version 15.0, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" and AMS-I.D, Version 17.0 "Grid-connected Renewable Electricity Generation" and AMS-I.F, Version 2.0 "Renewable Electricity Generation for Captive use and Mini-grid" are applicable to the PoA and correctly applied. The TRC therefore requests the registration of the PoA as a CDM PoA project activity.

Mr. Li Lixin (Team Leader)

Signature:



TÜV Rheinland (China) Ltd.
Beijing, 2015-3-24

Mr. Henri Phan (DOE Manager)

Signature:



TÜV Rheinland (China) Ltd.
Beijing, 2015-3-27

Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	CDM Validation and Verification Standard
CER	Certified Emission Reduction(s)
CH ₄	Methane
CL	Clarification request
CM	Combined Margin
CME	Coordinating/Managing Entity
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CPA	Component Project Activity
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EIA	Environmental Impact Assessment
ERPA	Emission Reduction Purchase Agreement
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse gas(es)
GNI	Gross National Income
GSC	Global Stakeholder Consultation
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
LoA	Letter of Approval
NGO	Non-governmental Organization
ODA	Official Development Assistance
OM	Operating Margin
O&M	Operation and Maintenance
OSV	On-site Visit
PD	Power Density

PDR	Preliminary Design Report
PoA	Programme of Activities
PP	Project Participant
PPA	Power Purchase Agreement
QA/QC	Quality Assurance and Quality Control
RECPR	Renewable Energy CDM Programme of Rwanda
REMA	Rwanda Environment Management Authority
SUZ	Special Underdeveloped Zone
tCO ₂ e	Tonnes of CO ₂ equivalents
TRC	TÜV Rheinland (China) Ltd.
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

TABLE OF CONTENTS

1	INTRODUCTION.....	7
1.1	Objective	7
1.2	Scope	7
2	METHODOLOGY.....	8
2.1	Desk Review of the PoA Design Documentation	8
2.2	Follow-up Interviews with Programme Stakeholders	10
2.3	Resolution of Outstanding Issues	11
2.4	Internal Quality Control	13
2.5	Validation Team	13
3	VALIDATION FINDINGS.....	14
3.1	Approval and Participation	14
3.2	Programme of Activities Design Document	18
3.3	Programme Description	18
3.4	Eligibility Criteria for CPA Inclusion	21
3.5	Management System	30
3.6	Baseline and Monitoring Methodology	32
3.7	Additionality	53
3.8	GHG Emission Reductions from Generic CPAs	57
3.9	Monitoring Plan	69
3.10	Sustainable Development	76
3.11	Environmental Impacts	76
3.12	Local Stakeholder Consultation	76
3.13	Comments by Parties, Stakeholders and NGOs	76

Appendix A: Validation Protocol

Appendix B: Certificates of Competence

1 INTRODUCTION

The organization 'DG Works Ltd' has commissioned the DOE TÜV Rheinland (China) Ltd. to perform a validation of the proposed CDM Programmes of Activity (PoA) 'Renewable Energy CDM Programme of Rwanda (RECPR)' in Rwanda (hereafter called "the PoA"). This report summarises the findings of the validation of the PoA identified in the PoA Design Document (PoA-DD) with generic information relevant to all Component Project Activities (CPAs) to be included in the PoA. The validation was performed on the basis of UNFCCC criteria for the PoAs under the CDM, as well as 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 activities, standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities and the subsequent decisions by the CDM Executive Board. In addition to these criteria, host country criteria are also taken into account.

1.1 Objective

The purpose of a validation is to have an independent, professional, ethical and fair third party assessment of the PoA design. In particular, the eligibility criteria for inclusion and demonstration of additionality of 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 design document (PoA-DD). The PoA-DD is reviewed against the relevant criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures, the simplified modalities and procedures for small-scale CDM project/ programme activities, standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodologies.

The Validation Team has, based on the requirements contained in the Validation and Verification Standard, Project Standard and the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities employed a rules-based approach, focusing on the identification of significant risks for programme implementation and the generation of CERs.

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

While carrying out the validation, TRC determines if the programme of activities complies with the requirements of Para 37 of the CDM M&P and also assess the claims and assumptions made in the PoA-DD without limitation on the information provided by the PoA 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 programme of activities meets all applicable CDM requirements, including those specified in the PoA standard, relevant methodologies, tools and guidelines and processing the same with CDM project cycle procedure;
- Assess the accuracy, conservativeness, relevance, completeness, consistency and transparency of the information provided by the PoA participants;
- Determine whether information provided by the PoA 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 PoA design documents
 - Publication of PoA-DD in UNFCCC for global stakeholder consultation;
 - A review of data and information;
 - Cross checking between information provided in PoA-DD with all necessary means without limitations to the information provided by the PoA 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 PoA 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's relating to projects or technologies similar projects under validation and review based on the approved methodology being applied 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 PoA Design Documentation

The following table outlines the documentation reviewed during the validation:

Ref no.	Reference Document
PoA-DD/Form/Methdology/Tools	
/1/	PoA-DD for GSP of Version 01, 22 Jun. 2013
/2/	Revised PoA-DD of Version 06, 13 Nov. 2014
/3/	Rwanda Environment Management Authority (DNA of the Rwanda), Letter of Approval (Ref.No.1861/DNA/2013) for the PoA, 12 Dec. 2013
/4/	Modalities of Communication Statement, signed on 15 Nov. 2013
/5/	CDM Executive Board, Programme design document form for CDM programmes of activities (F-CDM-PoA-DD), Version 03.0
/6/	CDM Executive Board, Guidelines for completing the programme design document form for CDM programmes of activities, Version 04.0
/7/	CDM Executive Board, Validation and Verification Standard, Version 7.0
/8/	CDM Executive Board, Project Standard, Version 07.0
/9/	CDM Executive Board, Project Cycle Procedure, Version 07.0
/10/	CDM Executive Board, Glossary of CDM Terms, Version 07.0
/11/	CDM Executive Board, Guidelines on the Assessment of Investment Analysis, Version 05
/12/	CDM Executive Board, Guidelines on Assessment of Debundling for SSC Project Activities, Version 03
/13/	CDM Executive Board, Guidelines on the demonstration of additionality of small scale project activities, Version 09
/14/	CDM Executive Board, Guidelines for demonstrating additionality of microscale project activities, Version 05
/15/	CDM Executive Board, Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities, Version 03
/16/	CDM Executive Board, General Guidelines for SSC CDM Methdologies, Version 19.0
/17/	CDM Executive Board, ACM0002, Version 15.0, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"
/18/	CDM Executive Board, AMS-I.D, Version 17.0, "grid connected renewable electricity generation"
/19/	CDM Executive Board, AMS-I.F, Version 2.0, "renewable electricity generation for captive use and mini-grid"
/20/	CDM Executive Board, Tool to calculate the emission factor for an electricity system, Version 4.0
/21/	CDM Executive Board, Tool for the demonstration and assessment of additionality, Version 7.0.0
/22/	CDM Executive Board, Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 02

/23/	CDM Executive Board, Tool to calculate baseline, project and/or leakage emissions from electricity consumption, version 01
/24/	CDM Executive Board, Standard for Sampling and Surveys for CDM project activities and programme of activities, version 3.0
/25/	CDM Methodology Panel, response for the eligibility of the combination of ACM0002, AMS-I.D, AMS-I.A, AMS-I.F and AMS-I.L in a renewable energy PoA, AM_CLA_0241, dated 22 August 2013 http://cdm.unfccc.int/methodologies/PAmethodologies/clarifications/93590
/26/	Rwanda Environment Management Authority, 2009 Baseline Emission Factors for National Power Grids in Rwanda, 27 July 2010 http://www.rema.gov.rw/dna/index.php?option=com_docman&task=doc_details&gid=24&Itemid=
/27/	UNEP Risoe Centre, CDM pipeline overview, updated on 1 st November 2013
/28/	UNEP Risoe Centre, PoA pipeline overview, updated on 1 st November 2013
/29/	DG Works Ltd(CME), Business license, 30 th March 2011
/30/	DG Works Ltd, Declaration of voluntary participation for the PoA
/31/	DG Works Ltd, PoA operational and Management System for RECPA, August 2013
/32/	DG Works Ltd, Training plan and records for the implementation of the PoA for Ngali Energy CDM Focal Point, 11th October 2013.
/33/	Organic Law determining the modalities of protection, conservation and promotion of environment in Rwanda, 8th April 2005
/34/	DG Works Ltd, Notification of prior consideration of CDM of PoA to DNA, 6 May 2013
/35/	Rwanda Environment Management Authority, the email regarding the issuance of the LoA , 13 Dec.2013
/36/	Rwanda EWSA (Energy, Water and Sanitation Authority), official website for power generation and imported from regional grid. http://www.ewsa.rw/index.php/En/productsand impor/energy/generationx.php/E

2.2 Follow-up Interviews with Programme Stakeholders

TÜV Rheinland Validation Team carried out an on-site visit dated from 23 Sept. 2013 to 25 Sept. 2013 and performed interviews with the PoA representatives and stakeholders. The site visit was conducted to validate the accuracy and completeness of the PoA description as specified in the webhosted PoA-DD.

During the site visit, the Validation Team reviewed the available programme of activity designs, feasibility studies, and conducted 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. Validation Team considered the views obtained in these interviews while arriving at Validation Opinion.

	Date	Name	Organization	Topic
/i/	23/09/2013	Ms Davinah Milenge Uwelle Managing Director	DG Works Ltd (CME)	<ul style="list-style-type: none"> - PP's background - PoA implementation and management system - Public funding - CDM consideration
/ii/	23/09/2013	Mr.Gregor Kochaniewicz Managing Partner		
/iii/	23/09/2013	Mr Jaap Du Preez Energy Adviser	Ngali Energy, Ltd (CPA implementer)	<ul style="list-style-type: none"> - Project design - Baseline identification - ER calculation - Additionality issues - Grid connection - Monitoring plan
/iv/	23/09/2013	Mr.Gervas Higiro Project Manager		
/v/	23/09/2013	Mr.Valere Nzeyimana Consultant		
/vi/	24/09/2013	Mr.James Kansiime District Executive Secretary	Gakenke District Government (Local authority)	<ul style="list-style-type: none"> - Project approval - Impacts on local economic, social and sustainable development - Preferential policy - Financial subsidy - Environmental impacts - Mitigation measures - Environmental approval
/vii/	24/09/2013	Mr Emmamel Nizeyimawa Sector Executive Secretary	Mataba Sector Government of Gakenke District (Local authority)	
/viii/	24/09/2013	Mr Nsinzaisana Ahielepre	Local farmer	<ul style="list-style-type: none"> - Job opportunities - Land compensation - Opinion on the PoA
/ix/	24/09/2013	Mr Amsittansiye Hispactte	Local farmer	

2.3 Resolution of Outstanding Issues

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

- It organizes, details and clarifies the requirements a CDM project is expected to meet CDM requirements;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.
- It ensures that the issues are accurately identified, formulated, discussed and concluded in the validation report.
- It ensures the determination of achieving credible emission reductions from the programme of activity.

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

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

- Mistakes have been made with a direct influence the ability of the programme of activity to achieve on project results like real, measurable, verifiable and additional emission reductions;
- CDM and/or methodology specific requirements have not been met; or
- There is a risk that the PoA would not be accepted as a CDM project 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) is raised during validation to highlight issues related to project implementation that require review during the first verification of the programme of activity. FARs shall not relate to the CDM requirements for registration.

Table 1: Validation requirements

Checklist Question	Reference	Means of Validation (MoV)	Findings, comments	Draft and/or Final Conclusion
The various UNFCCC requirements as specified in the VVS are linked to checklist questions the PoA 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.

Table 2: List of Requests for Corrective Action (CAR) and Clarification (CL)

Clarifications and corrective action requests	Ref. to checklist question in table 1	Summary of project owner response	Validation Team's conclusion
---	---------------------------------------	-----------------------------------	------------------------------

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 1 where the CAR or CL is explained.	The responses given by the PoA participants during the communications with the Validation Team should be summarized in this section.	This section should summaries the Validation Team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".
--	---	--	--

Table 3: List of forward action requests (FARs)

FAR number	Reference	Summary of project owner response	Validation Team conclusion
Forward action request (FAR) to be raised during validation to highlight issues related To project implementation that requires review during the first verification of the programme of activity. FARs Shall not relate to the CDM requirements for registration.	Reference to the checklist question number in Table where the CAR or CL is explained.	The responses given by the PoA participants during the communications with the Validation Team should be summarized in this section.	This section should summaries the Validation Team's responses and final conclusions. The conclusions should also be included in Table 3, under "Final Conclusion".

2.4 Internal Quality Control

The final validation report underwent a technical review by two qualified independent reviewers before requesting registration of the programme of activity. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for CDM validation and verification that meets the criteria of EB guidelines for qualification.

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 programme of 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 TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Supervising the work	Desk review	Site Visit + Interview	Report and protocol Writing	Technical Expert Input	Reporting Support	Technical Reviewer
MA Jiandong	China	1.1, 1.2, 4.5	X	X	X	X			
Mr. Lixin Li	China	1.1,1.2,2.1,2.2,3.1,4.5	X	X					
WU Ze	China	1.2, 4.3, 4.5, 9.1, 13.1			X				
Eddie Balaba Mugarura	Rwanda				X				
Walter Tang	China	1.1, 1.2, 2.1, 2.2, 3.1, 4.3, 4.5, 13.1							X

3 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of validation 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 PoA-DD.

3.1 Approval and Participation

Based on the PoA-DD/2/, the PoA is a unilateral one. The project participant from the host party is DG Works Ltd. The Rwanda is a party to the Kyoto Protocol, which can be verified by referring to website of 'http://unfccc.int/parties_and_observers/items/2704.php'.

3.1.1 Letter of Approval

The Letter of Approval (LoA)/3/, issued by the DNA of Rwanda i.e Rwanda Environment Management Authority, has been received from the project participant directly. This LoA/3/ authorizes 'DG Works Ltd' as the voluntary project participant and also the coordinating/managing entity (CME) for the coordination of the proposed PoA. The LoA refers to the precise PoA title in the PoA-DD (Version 06, 13 Nov. 2014)/2/. The authenticity of this LoA/3/ has been validated effective by reviewing the email from the DNA regarding the issuance of the LoA/35/.

It is emphasized that recommendations including the CME explanations are attached in this LoA/3/ as following:

item	Sustainable Development Criteria	DG Works Explanations	DNA Recommendation
1	Any banned substances that deplete the ozone layer are not	The project does not use/produce	During construction of transmission line, make

	used	substances (CFCs and other halogens) that deplete the ozone layer. The project is not involved any chemical processing.	sure that electric transformers are free of Polychlorinated Biphenyls (PCBs)
2	Classified forests shall be protected against any form of degradation or destruction from licensed or unlicensed utilization.	It is not envisaged that the project will destroy any forests. During canal and road access construction the trees are likely to be felled. Nevertheless, tree cutting will be avoided wherever possible and the project has a plan to replace trees cut down.	Protect the created roads by planting trees alongside the road and also protect watershed by planting trees or grass that are suitable.
3	Health and safety regulation is followed or exceeded resulting in the protection of human health.	The contractor shall develop and implement a construction site environment, health and safety management plan. This will include medical health care, provision of proper sanitation installations, wearing protective equipment. During construction phase workers will undertake health and safety trainings including awareness campaigns on communicable diseases. The contractor will ensure that all have health insurance (mutuelles de santé) as well as have insurance covering all workers against work related accidents.	Health care cover has to be emphasized within workers contracts.

4	Technology transfer and capacity development regarding the technology will occur	The project is first of its kind in Mataba Sector and hence new technology and skill will be transferred to the locals.	Young graduate should benefits from these projects by being hired as interns and learning by doing during construction phase and on.
---	--	---	--

It is emphasized by the host DNA in the LoA/3/ that a strong self-monitoring plan should be reinforced to adopt all measures listed in the Sustainable Development matrix as attached in the LoA/3/. The proposed PoA include them in the PoA-DD as eligibility criteria.

Furthermore, the below table summarizes the project participant and Party involved. The authenticity of the Letters of Approval has been validated by the Validation Team as indicated in the table below.

Project participants	DG Works Ltd
Parties involved	Rwanda
APPROVAL	
LoA received	Yes
Date of LoA	12 Dec. 2013
Reference to document	Ref.No.1861/DNA/2013
LoA received from	Project participant
Validation of authenticity	The authenticity of the letter of approval from host party has been validated by reviewing the email regarding issuance of the LoA to the DG Works/35/. No doubts are found toward this letter.
Validity of LoA	The Validation Team has assessed the email regarding issuance of the LoA and confirms that the LoA is valid.
PARTICIPATION	
Party is party to Kyoto Protocol	Yes
Voluntary participation	Yes
Diversion of official development aid towards host country	Not applicable
Project contribution to Sustainable Development	Yes. It confirms in the LoA that the PoA assists Rwanda in achieving sustainable development.

The LoA is therefore regarded as valid and meeting the requirements.

3.1.2 ODA Validation

It is claimed in the section A.7 of the PoA-DD (Version 06, 13 Nov. 2014)/2/ that no public funding from Annex I countries is provided to the PoA and an affirmation from Annex I Parties that no funding results in a diversion of ODA would be provided if public funding from the Parties is involved in the CPAs. During on-site interview with Ms Davinah Milenge Uwelle /i/, the Managing Director from DG Works Ltd, the Validation Team was introduced that the development of all component project activities (CPAs) will be financed by the CPA implementers themselves and/or loan from commercial banks. And no evidence has been revealed that the PoA can be seen as a diversion of ODA funding from Annex I parties.

3.1.3 Modalities of Communications

Requirement of MoC	Criteria fulfilled	Determination by the Validation Team
Is the focal point identified?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Yes, the CME (i.e. DG Works Ltd) have been identified as the joint focal point for the PoA in the MoC/4/.
Is the MoC signed by all project participant (including focal point identified entity/personal)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Yes, the MoC has been signed by all project participants (including identified focal points). For the section 3 "Statement of Agreement" of the MoC, only the CME has signed this statement of agreement on behalf of all project participants, which is in line with the requirements of filling out MoC.
Is the written confirmation obtained by the PP's stating the authorization, specimen signatures and personal details, employment status are valid and accurate?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The Modalities of Communication Form (MoC) signed on 15 Nov. 2013 was received from the project participant directly. The Validation Team has contacted Mr. Grzegorz Kochaniewicz from DG Works Ltd through the Email address as indicated in the MoC, to confirm the authenticity of the MoC. Besides that, the Validation Team confirms the contact information contained in the Appendix 1 of the PoA-DD (Version 06, 13 Nov. 2014) is consistent with that in annex I of the MoC/4/ and within PoA-DD (Version 06, 13 Nov. 2014) itself.
Is the MoC received by the Validation Team from the PP with whom DOE has the contractual relationship?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Yes, the MoC was received from the CME (i.e. DG Works Ltd), which has the contractual relationship with TRC.

The Validation Team confirms that the applicable latest template has been used by the project participant for the MoC. The MoC was received from the DOE's contractual project participant. All the personal who have duly signed the MoC have been confirmed from the written communication regarding their personal identity, specimen signatures and employment status. In conclusion, the Validation Team confirms it has performed due diligence on the MoC statement in accordance with the requirements of Para. 58, VVS of Version 7.0.

3.2 Programme of Activities Design Document

The Validation Team confirms that the PoA-DD of Version 06, 13 Nov. 2014/2/, is prepared based on the latest PoA-DD template “Programme design document form for CDM programmes of activities (F-CDM-PoA-DD), Version 03.0”/5/ and is completed in accordance with the latest “Guidelines for completing the programme design document form for CDM programmes of activities, Version 04.0”/6/.

3.3 Programme Description

The programme description in the PoA-DD (Version 06, 13 Nov. 2014)/2/ has been validated by on-site physical inspection, document review, and on-site stakeholder interview, including project management representative, local resident and local officers.

The proposed PoA is developed by the coordinating/managing entity (CME) namely ‘DG Works Ltd’. This programme aims to promoting the development of large scale and/or small-scale hydropower, solar photovoltaic power and geothermal power projects in Rwanda, and the physical/geographical boundary of the PoA is limited within Rwanda. After having reviewed “Declaration of voluntary participation for the PoA”/30/ and on-site interviews with the CME, the Validation Team confirms that the PoA is a voluntary co-ordinated action by the CME. It is described in the PoA-DD (Version 06, 13 Nov. 2014)/2/ that there are three possible types of CPAs under the PoA as follows:

Project scenario	Description of project scenario
Scenario 1	Green-field grid-connected large scale hydropower project
Scenario 2	Green-field grid-connected large scale solar power project
Scenario 3	Green-field grid-connected large scale geothermal power project
Scenario 4	Green-field mini-grid connected or captive use ¹ small scale geothermal power project
Scenario 5	Green-field mini-grid connected or captive use small scale solar photovoltaic power project
Scenario 6	Green-field mini-grid connected or captive use small scale hydropower project
Scenario 7	Green-field grid-connected small scale geothermal power project
Scenario 8	Green-field grid-connected small scale solar photovoltaic power project
Scenario 9	Green-field grid-connected small scale hydropower project

The above-mentioned 9 scenarios are described by 9 separate generic CPAs in the section of Part II in the PoA-DD (Version 06, 13 Nov. 2014)/2/, which is in line with the Para 143 of Clean Development Mechanism Project Standard/8/.

¹ It is defined as project displacing grid electricity consumption at the user end.

Each CPA under the programme involves implementation of large scale or small-scale hydropower project, solar power project and geothermal power project with function of supplying electricity to the grid/to the consumers via the grid or directly. The PoA will achieve emission reductions by supplying zero-emission electricity to Rwanda National Grid (which is dominated by fossil fuel fired power plants according to recent published Rwanda power generation data for the years from 2005 to 2009/26/), supplying to mini-grid where in the baseline all generators use exclusively fuel oil and/or diesel fuel, or displacing the electricity imported from national grid at the user end

Selection of Crediting Period of the PoA:

As per the PoA-DD (Version 06, 13 Nov. 2014)/2/, the starting date of the PoA is identified as 06 May 2013, which is the date of Notification of prior consideration of CDM to host DNA/34/ which is in line with the Para 159 of Clean Development Mechanism Project Standard/8/. The length of the PoA is taken as 28 years as per para 160 of the PS/8/.

To the Validation Team's opinion, the description of the proposed programme as contained in the PoA-DD (Version 06, 13 Nov. 2014)/2/ sufficiently covers all relevant elements, is accurate and complete and it can provide the reader with a clear understanding the nature of the proposed programme of activities.

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.)	In the webhosted PoA-DD, there is only one generic CPA (Part II) including 2 hydropower project scenarios for case 1 and case 6 (i.e. green-field, capacity addition of hydropower project). Additionally for case 4-6, there is only one generic CPA (Part II) including two project scenarios respectively applying AMS-I.D and AMS-I.F.	In the final version of PoA-DD, the 2 hydropower project scenarios for case 1 and case 6 (i.e. green-field, capacity addition of hydropower project) and 2 small scale renewable power project scenarios applying AMS-I.D and AMS-I.F for case 4-6 have been properly described in the section of Part II, respectively in the PoA-DD. For details, please refer to the Table 2 of Appendix A of this report. The capacity addition for hydropower projects has been cancelled.
Methodologies and tools applied (scope and version numbers)	N/A, no change for this part.	
CER calculations (formula applied/ amount of emission	N/A, no change for this part.	

reduction)		
Eligibility criteria including demonstration of additionality	<p>In the webhosted PoA-DD, the location where the PoA is operated is not justified respect of additionality for microscale project.</p> <p>For small scale renewable power projects applying methodology AMS-I.F, the users would have been supplied electricity from two sources listed below:</p> <ul style="list-style-type: none"> (a) National grid or regional grid (grid hereafter); (b) Fossil fuel fired captive power plant (c) A carbon intensive mini-grid 	<p>In the final version of PoA-DD, the location where the PoA is operated has been justified respect of additionality for microscale project.</p> <p>For small scale renewable power projects applying methodology AMS-I.F, the users would have been supplied electricity from two sources listed below:</p> <ul style="list-style-type: none"> (a) National grid (grid hereafter); (b) A mini grid where all generators use exclusively fuel oil and/or diesel fuel. <p>For CPAs displacing electricity from grid at the user end, the excess electricity may be supplied to the grid. The proposed PoA does not include CPAs displacing electricity from mini grid where energy sources are not fuel oil and/or diesel fuel and the CPAs displacing electricity from fossil fuel fired captive power plant.</p> <p>For details, please refer to the Table 2 of Appendix A of this report.</p>
CME's Management system	N/A, no change for this part.	
Monitoring (parameters / frequency)	There is not monitored parameters included in calculation of the CO2 emissions from the combustion of fossil fuel combustion for geothermal power project.	There is monitored parameters included in calculation of the CO2 emissions from the combustion of fossil fuel combustion for geothermal power project.
Crediting period (type / start date)	In the webhosted PoA-DD, the start date of the PoA was not defined in the format of dd/mm/yyyy.	<p>In the final version of PoA-DD, the start date of the PoA has been clearly defined as 06/05/2013, which is the date of Notification of prior consideration to DNA of Rwanda.</p> <p>The date of prior consideration notification to host DNA is selected since it is conservative that the date of prior consideration notification to</p>

		UNFCCCC (29 April 2013) is earlier than the date of prior consideration notification to host DNA (6May 2013). For details, please refer the Table 2 of Appendix A of this report.
<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 PoA 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 PoA in line with the VVS (Version 7.0) 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>		

3.4 Eligibility Criteria for CPA Inclusion

After having reviewed the PoA-DD (Version 06, 13 Nov. 2014)/2/ and on-site interview with representatives of CME, the Validation Team confirms that the CME establishes objective, comprehensive and verifiable criteria for the inclusion of the CPAs.

The detailed assessment on the eligibility criteria for inclusion of a CPA is demonstrated in line with the Para 16 of "Demonstration of addtionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities, Version 03.0"/15/ in the table below:

No.	Eligibility criteria for inclusion of a CPA in the PoA	Compliance	Example of Evidence	Validation opinion
(a)	The proposed CPA is located in Rwanda..	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<ul style="list-style-type: none"> – Project report, or – power purchase agreement, or – general project information material such as internal memos or exchanges with a financing institution, or – other relevant project documents 	Yes, the PoA-DD (Version 06, 13 Nov. 2014)/2/ requires that the CPA shall be located within the boundary of Rwanda and the cited documentation is suffiecient to confirm the compliance with this criteria, which is in line with the Para 16(a) of "Demonstration of addtionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities"/15/.

(b)	<p>Conditions for avoiding double counting:</p> <p>The CPA has not yet been included in another PoA, is not under validation or has been registered as a single CDM project activity or other programs different than CDM for the same claimed emission reductions. The procedure to avoid double counting is further explained in section C of the PoA-DD.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>– Signed confirmation from the entity implementing the CPA.</p>	<p>Yes, the cited documentation is sufficient to confirm the compliance with the defined condition, which is in line with the Para 16(b) of “Demonstration of addtionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities”/15/.</p>
	<p>Implement a record keeping system and a procedure to avoid double accounting as described in section C of PoA-DD.</p>		<p>– Confirmation that recording keeping system is in place and the CPA does not lead to double accounting of emission reductions.</p>	<p>Yes, the cited documentation is sufficient to confirm the compliance with the defined condition. The Validation Team considers that the defined criteria are required to be fulfilled for inclusion of CPA into PoA.</p>
(c)	<p>The proposed CPA comprises of only one type of renewable energy technology: either hydro or solar PV or geothermal as per section A6 of PoA-DD.</p> <p>The capacity of small scale projects will be equal to or lower than 15MW, and the capacity of large scale projects will be above 15MW. All projects will meet the criteria of the applied methodology (ies).</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>– Project report, or</p> <p>– power purchase agreement, or</p> <p>– general project information material such as internal memos or exchanges with a financing institution, or</p> <p>– other relevant project documents</p>	<p>Yes, the cited documentation is sufficient to confirm the compliance with the defined criteria, which is in line with the Para 16(c) of “Demonstration of addtionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities”/15/.</p>

(d)	The start date of the proposed CPA “dd/mm/yyyy” is on or after the start date of the PoA “06/05/2013”.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	– Contracts for equipment or construction/operation services or any other documents as stated in the Glossary of CDM terms.	Yes, the cited documentation is sufficient to confirm the start date of CPA and the defined criteria is in line with the Para 16(d) of “Demonstration of additionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities”/15/.
(e)	The CPA shall meet the applicability requirements of all the relevant CDM methodologies: ACM0002 version 15.0.0/17/;AMS-I.D.version 17.0/18/; AMS-I.F.version2.0/19/;	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	– The CPA entity will provide the relevant documents as per application of the relevant methodology as defined below (of the PoA-DD).	Yes, the cited documentation is used to confirm the project scenario and the applicability of using ACM0002 version 15.0.0/17/;AMS-I.D.version 17.0/18/; AMS-I.F.version2.0/19/, and the defined criteria is in line with the Para 16(e) of “Demonstration of additionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities”/15/.
(f)	For micro scale CPA, the CPA is demonstrated additional by using “Guidelines for demonstrating additionality of microscale project activities, Version 05”/14/ while meeting the following criteria 1) Installed capacity of the SSC-CPA is not greater than 5MW. 2) In order to	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	– Feasibility study report or other relevant project documents. – Feasibility study report, or GPS coordinates or other relevant project documents	Yes, the cited documentation is sufficient to confirm the compliance with the defined criteria, which is in line with the Para 16(f) 16(k) and 16(l) of “Demonstration of additionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities”/15/. The CPA’s additionality assessment approach has been discussed in

	determine the occurrence of de-bundling in accordance with the “Guidelines on assessment of de-bundling for SSC project activities” version 03/12/, the CPA shall satisfy the conditions as per the guidelines.			the section 3.7. Approach for demonstrating CPA’s additionality of this report. And the detailed assessment shall be done at the specific CPA level.
	<p>For small scale CPA, the CPA is demonstrated additional by using “Guidelines on the demonstration of additionality of small scale project activities, Version 09.0”/13/ while meeting the following criteria</p> <ol style="list-style-type: none"> 1) The installed capacity of the CPA is not greater than 15MW threshold throughout the crediting period of the CPA in accordance with the “General Guidelines to SSC CDM methodologies” /16/ and relevant methodologies AMS-I.D.version 17.0; AMS-I.F.version2.0; 		<ul style="list-style-type: none"> – Feasibility study report, or nameplate of the generator, or general project information material such as internal memos or exchanges with a financing institution, or other relevant project documents – Feasibility study report, or GPS coordinates, or general project information material such as internal memos or exchanges with a financing institution, or other relevant project documents – Feasibility study report, or general project information material such as internal memos or exchanges with a financing institution, or other relevant project documents – Describe how the additionality of the 	

	<p>2) In order to determine the occurrence of de-bundling in accordance with the “Guidelines on assessment of de-bundling for SSC project activities” version 03/12/, the CPA shall satisfy the conditions as per the guidelines.</p> <p>3) If the project activity involves technologies which are listed under the positive list of renewable electricity generation technologies of Guidelines on the demonstration of additionality of small scale project activities (version 09)/13/, the project activity is considered automatically additional.</p> <p>4) If the project activity involves technologies which are not listed under the positive list of renewable electricity generation, additionality shall be</p>		<p>project activity is demonstrated as per the guidelines on the demonstration of additionality of small scale project activities (version 09).</p>	
--	---	--	---	--

	<p>demonstrated using one of the following methods as per the guidelines on the demonstration of additionality of small scale project activities (version 09)/13/: Investment barrier analysis; access to finance barrier; technology barrier analysis; barrier due to prevailing practice; first-of-its-kind barrier.</p>			
	<p>For large scale CPA, the CPA is demonstrated additional by using “Tool for the demonstration and assessment of additionality, version 7.0.0”/21/ while meeting the following criteria</p> <ol style="list-style-type: none"> 1) The CPA shall comply with the applicability conditions of ACM0002 version15.0/17/ . 2) The CPA is additional in accordance with the “Tool for the 		<ul style="list-style-type: none"> – Feasibility study report, or grid connection approval, general project information material such as internal memos or exchanges with a financing institution, or other relevant project documents – Feasibility study report, or general project information material such as internal memos or exchanges with a financing institution, or other relevant project documents; calculation of financial indicators in line with the “Guidelines on the 	

	<p>demonstration and assessment of additionalty"version 7.0.0/21/</p> <p>When investment analysis is used for the demonstration of additionalty, option (i) of paragraph 13 (a) of EB 74 Annex 5 will be applicable.</p> <p>The benchmark analysis as per "Tool for the demonstration and assessment of additionalty" version 07 will be used to conduct the investment analysis.</p> <p>The following parameters are defined by CME for the investment analysis:</p> <p>1, IRR</p> <p>2, costs of capital</p> <ul style="list-style-type: none"> • prime lending rate • WACC 		assessment of investment analysis"(Version 5.0)/11/ or evidence to demonstrate the barrier analysis	
(g)	The CPA has carried out a local stakeholder consultation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	– Local stakeholder consultation report	Yes, the cited documentation is sufficient to confirm the defined criteria, which is

	If Environmental Impact Assessment is required according to the laws and regulations of Rwanda, the CPA has carried out an Environmental Impact Assessment in line with host country laws and regulations.		– Environmental Impact Assessment report, if applicable	in line with the Para 16(g) of “Demonstration of addtionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities”/15/.
(h)	The CPA has not received funding from Annex I party that results in a diversion of official development assistance. In cases where public funding from Parties included in Annex 1 is involved in CPA, CPA entities shall provide an affirmation obtained from Parties included in Annex 1 that such funding does not result in a diversion of official development assistance", is separate from, and is not counted towards the financial obligations of those Parties.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	– Confirmation letter from CPA entity. In cases where public funding from Parties included in Annex 1 is involved in CPA, CPA entities shall provide an affirmation obtained from Parties included in Annex 1 that such funding does not result in a diversion of official development assistance", is separate from, and is not counted towards the financial obligations of those Parties.	Yes, the defined criteria is in line with the Para 16(h) of “Demonstration of addtionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities”/15/.
(i)	The CPA could either be grid-connected, connected to mini grid where in the baseline all generators use exclusively fuel oil and/or diesel fuel, or individual users	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	– Power purchase agreement, or other relevant project documents –	Yes, the cited documentation is used to confirm the compliance with the defined criteria, which is in line with the Para 16(i) of “Demonstration of addtionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities, Version 02.1”/15/.

(j)	Sampling is not required for the CPA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Not applicable.	It is not applicable for the CPA, which is in line with the Para 16(j) of "Demonstration of additionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities"/15/.
(k)	See (f) above	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See (f) above	See (f) above
(l)	See (f) above	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See (f) above	See (f) above
Additional eligibility criteria to be fulfilled for inclusion of CPA in PoA				
(m)	The proposed CPA is located at a site where there was no renewable energy power plant operating prior to the implementation of the proposed CPA. The CPA is greenfield project.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	– Project report, or power purchase agreement, or general project information material such as internal memos or exchanges with a financing institution, or other relevant project documents	Yes, the cited documentation is sufficient to confirm the compliance with the defined condition. The Validation Team considers that the defined criteria are required to be fulfilled for inclusion of CPA into PoA.
(n)	The CPA owner has entered into a contractual agreement with DG Works Ltd at the CPA level.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	– Contract with DG Works Ltd.	Yes, the cited documentation is sufficient to confirm the compliance with the defined condition. The Validation Team considers that the defined criteria are required to be fulfilled for inclusion of CPA into PoA.
(o)	In case of hydro power plants, the power density of the CPA project activity shall be greater than 4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	– Feasibility study report or other relevant documents for CPA mentioning the surface area of	Yes, the cited documentation is sufficient to confirm the compliance with the defined condition. The

	W/m2.		reservoir, technology, etc. and calculation of power density in the CPA-DD.	Validation Team considers that this defined criteria is required to be fulfilled for inclusion of CPA into PoA.
(p)	The energy generating equipment employed by the CPA is not transferred from another activity.		– Feasibility study report and its approval; purchase contract of main equipment.	Yes, the cited documentation is sufficient to confirm the compliance with the defined condition. The Validation Team considers that the defined criteria are required to be fulfilled for inclusion of CPA into PoA.
(q)	The monitoring plan of the CPA is stated and discussed at CPA level. The monitoring plan of the CPA should include sustainable development criteria if listed in the letter of approval from host country DNA.		– monitoring plan of CPA-DD or other relevant documents	Yes, the cited documentation is sufficient to confirm the compliance with the defined condition. The Validation Team considers that the defined criteria are required to be fulfilled for inclusion of CPA into PoA.

3.5 Management System

After having reviewed the PoA-DD (Version 06, 13 Nov. 2014)/2/ and on-site interview with representatives of CME, the Validation Team confirms that the CME has the competencies to check the features of potential CPAs and ensure that each CPA meets all requirements and eligibility criteria before inclusion in the registered PoA.

The Validation Team concludes that the management system outlined in the PoA-DD (Version 06, 13 Nov. 2014)/2/ is clear, transparent and valid. The detailed assessment on the management system is demonstrated in line with the Para 19 of “Demonstration of additionality, development of eligibility criteria and applicable of multiple methodologies for programmes of activities”/15/ in the table below:

No.	Elements of the management system	Compliance with PoA Standard	Validation opinion
(a)	A clear definition of roles and responsibilities of personnel involved in the process of	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The CME has clearly defined the roles and responsibilities of personnel involved in the process of inclusion of

	inclusion of CPAs, including a review of their competencies		CPAs in the section C of PoA-DD (Version 06, 13 Nov. 2014)/2/ and PoA O&M system mannul/31/. The Validation Team considers that this element is made available and eligible in the PoA-DD (Version 06, 13 Nov. 2014)/2/ and PoA O&M system mannul/31/..
(b)	Records of arrangements for training and capacity development for personnel	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As outlined in the PoA-DD (Version 06, 13 Nov. 2014)/2/, the CME shall organize comprehensive trainings for its staff, which is further evidenced by the "Training plan and records for the implementation of the PoA"/32/. The Validation Team considers that this element is made available and eligible in the PoA-DD (Version 06, 13 Nov. 2014)/2/.
(c)	A procedure for technical review of inclusion of CPAs	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As outlined in the PoA-DD (Version 06, 13 Nov. 2014)/2/, the procedures for technical review of inclusion of CPAs shall be established. The Validation Team considers that this element is made available and eligible in the PoA-DD (Version 06, 13 Nov. 2014)/2/.
(d)	A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As outlined in the PoA-DD (Version 06, 13 Nov. 2014)/2/, a procedure to avoid double counting shall be established and the CME will check with the EB website, CDM pipeline/27/ and PoA pipeline/28/ to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA. The Validation Team considers that this element is made available and eligible in the PoA-DD (Version 06, 13 Nov. 2014)/2/.
(e)	Records and documentation control process for each CPA under the PoA	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As outlined in the PoA-DD (Version 06, 13 Nov. 2014)/2/, the CME shall maintain a record keeping system, which lists out the detailed information about the PoA and each CPA. And the relevant documentation control process has also been properly specified in the PoA-DD (Version 06, 13 Nov. 2014)/2/. The Validation Team considers that this element is made available and eligible

			in the PoA-DD (Version 06, 13 Nov. 2014)/2/.
(f)	Measures for continuous improvements of the PoA management system	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>As outlined in the PoA-DD (Version 06, 13 Nov. 2014)/2/ and PoA O&M system mannul/31/, the PoA management system shall be reviewed to identify shortcomings, to find solutions and finally to improve the PoA management performance.</p> <p>The Validation Team considers that this element is made available and eligible in the PoA-DD (Version 06, 13 Nov. 2014)/2/.</p>
(g)	Any other relevant elements.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Not applicable

3.6 Baseline and Monitoring Methodology

3.6.1 Applicability of the selected methodology

The proposed PoA applies respectively, the approved methodology ACM0002, Version 15.0-"Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (which is valid till submission for request for registration before 31 May 2014²) for large scale grid-connected renewable hydropower project, solar power project and geothermal power project, and the approved methodology AMS-I.D, Version 17.0-"Grid-connected Renewable Electricity Generation" and AMS-I.F, Version 2.0-"Renewable Electricity Generation for Captive use and Mini-grid" (which is valid since 17th June 2011 onwards³) for small scale grid-connect or captive use renewable hydropower project, solar power project and geothermal power project. Hence the Validation Team confirms the used version of the selected methodology is valid for the proposed project activity.

The applicable conditions of the applied ACM0002, Version 15.0 are justified as follows:

Applicability criteria of the methodology ACM0002, Version 15.0	Criteria fulfilled	Validation Team's opinion
1. The methodology is applicable to grid-connected renewable power generation project activities that: (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant); (b) involve a capacity addition;(c)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	As described in the PoA-DD (Version 06, 13 Nov. 2014)/2/, the proposed PoA will include 3 types of large scale renewable power plants to generate electricity and supply it to the grid: hydro (greenfield), solar (greenfield) and geothermal (greenfield). The Validation Team confirms that three of them as stated in the PoA-DD are

² <http://cdm.unfccc.int/methodologies/DB/MPY3HVJIMTKES5P0UNTYE827D6Q7EHB>

³ <http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXCSA7BDQ7FU1X>

involve a retrofit of (an) existing plant(s); or (d) involve a rehabilitation of (an) existing plant(s)/unit(s), or (e) involve a replacement of (an) existing plant(s).		meeting the applicability condition of the methodology applied/17/.
2. The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	As demonstrated above, the proposed PoA will include 3 types of large scale renewable power plants to generate electricity and supply it to the grid: hydro(greenfield), solar (greenfield) and geothermal (greenfield), and therefore it is meeting the applicability condition of the methodology applied/17/
3. In the case of capacity additions, retrofits, rehabilitation or replacements (except for wind, solar wave or tidal power capacity addition projects): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion retrofit or rehabilitation of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>Not applicable for greenfield large scale hydro, solar and geothermal power project as outlined in the PoA-DD/2/.</p> <p>therefore it is meeting the applicability condition of the methodology applied/17/</p>
<p>4. In case of hydro power plants: One of the following conditions must apply:</p> <ul style="list-style-type: none"> • The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or • The project activity is implemented in an existing single or multiple reservoirs, where the volume of the reservoirs is increased and the power density calculated using quation (3) of the methodology, is greater than 4 W/m²; or • The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3) of the methodology, is greater than 4 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>For large scale hydropower project as outlined in the PoA-DD/2/, the CPA shall be either implemented in in an existing single or multiple reservoirs, with no change in the volume of reservoir or with the power density greater than 4 W/m².</p> <p>The project is implemented in an existing single or multiple reservoir, where the volume of reservoirs is increased and the power density is greater than 4 W/m²</p> <p>The project results in new single or multiple reservoirs and the power density is greater than 4 W/m²</p> <p>The project is not an intergrated</p>

<p>W/m²; or</p> <ul style="list-style-type: none"> The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3) of the methodology, is lower than or equal to 4 W/m², all of the following conditions shall apply: <ul style="list-style-type: none"> (i) The power density calculated using the total installed capacity of the integrated project, as per equation (4) of the methodology, is greater than 4 W/m²; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be: <ul style="list-style-type: none"> a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project 		<p>hydropower project.</p> <p>Not applicable for large scale solar and geothermal power project as outlined in the PoA-DD/2/.</p> <p>therefore it is meeting the applicability condition of the methodology applied/17/</p>
<p>5. In the case of integrated hydro power projects, project proponent shall:</p> <p>(a) Demonstrate that water flow from upstream power plants/unit spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or</p> <p>(b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p>	<p>The project is not an integrated hydropower project.</p>

different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.		
6. The methodology is not applicable to the following: <ul style="list-style-type: none"> • Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; • Biomass fired power plants; 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	As demonstrated above, the large scale grid-connected renewable power projects as described in the PoA-DD/2/, not fallen within the three types of the projects indicated here as applicability condition. therefore it is meeting the applicability condition of the methodology applied/17/
Applicability criteria of the Tool to calculate the emission factor for an electricity system	Criteria fulfilled	Validation Team's opinion
7. This tool may be applied to estimate the OM,BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	According to the PoA-DD (Version 06, 13 Nov. 2014)/2/, the CPA is a hydro/solar/geothermal power project activity which supplies the electricity to the National grid system. therefore it is meeting the applicability condition of the methodology applied/17/
8. In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	The project electricity system is located within Rwanda, which is not connected to any Annex I country. therefore it is meeting the applicability condition of the methodology applied/17/

The applicable conditions of the applied AMS-I.D, Version 17.0 are justified as follows:

Applicability criteria of the methodology AMS-I.D, Version 17.0	Criteria fulfilled	Validation Team's opinion
1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	As described in the PoA-DD (Version 06, 13 Nov. 2014)/2/, the proposed PoA will include 4 types of small-scale renewable power plants to generate

<p>renewable biomass:</p> <p>(a) Supplying electricity to a national or a regional grid; or</p> <p>(b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.</p>		<p>electricity and supply it to the grid or identified consumer facility via national grid through a contractual arrangement such as wheeling: hydro(greenfield), solar (greenfield) and geothermal (greenfield). The Validation Team confirms that four of them as stated in the PoA-DD are meeting the applicability condition of the methodology applied/17/.</p>
<p>2. This methodology is applicable to project activities that:</p> <p>(a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant);</p> <p>(b) Involve a capacity addition;</p> <p>(c) Involve a retrofit of (an) existing plant(s);</p> <p>(d) Involve a replacement of (an) existing plant(s).</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>As demonstrated above, the proposed PoA will include 4 types of small scale renewable power plants to generate electricity and supply it to the grid: hydro(greenfield), solar (greenfield) and geothermal (greenfield),</p> <p>therefore it is meeting the applicability condition of the methodology applied/17/</p>
<p>3. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:</p> <ul style="list-style-type: none"> • The project activity is implemented in an existing reservoir with no change in the volume of reservoir; • The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m^2; • The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m^2. 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>For the small scale hydro power projects as described in the PoA-DD/2/, the CPA shall be either implemented in an existing or new reservoir with the power density greater than 4 W/m^2.</p> <p>Not applicable for small scale solar and geothermal power project as outlined in the PoA-DD/2/.</p> <p>therefore it is meeting the applicability condition of the methodology applied/17/</p>
<p>4. If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>As outlined in the PoA-DD/2/, the CPA has only renewable component, and with the capacity of less than 15 MW for the small scale renewable power project.</p>
<p>5. Combined heat and power (co-</p>	<input type="checkbox"/> Yes	<p>As outlined in the PoA-DD/2/, the</p>

generation) systems are not eligible under this category.	<input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<p>CPAs as small scale renewable power project do not involve combined heat and power.</p> <p>therefore it is meeting the applicability condition of the methodology applied/17/</p>
6. In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>According to the PoA-DD (Version 06, 13 Nov. 2014)/2/, the PoA does not include capacity addition at an existing hydropower plant..</p> <p>therefore it is meeting the applicability condition of the methodology applied/17/</p>
7. In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>According to the PoA-DD (Version 06, 13 Nov. 2014)/2/, the CPAs as small scale renewable power project do not involve retrofit or replacement. Thus it is not applicable.</p>
Applicability criteria of the Tool to calculate the emission factor for an electricity system	Criteria fulfilled	Validation Team's opinion
8. This tool may be applied to estimate the OM,BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>According to the PoA-DD (Version 06, 13 Nov. 2014)/2/, the CPA is a hydro/solar/geothermal power project activity which supplies the electricity to the National grid system or the CPA results in saving of electricity that would have been provided by the grid if applicable.</p> <p>therefore it is meeting the applicability condition of the methodology applied/17/</p>
9. In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>For the grid connected small scale power project as outlined in the PoA-DD/2/, the project electricity system is located within Rwanda, which is not connected to any Annex I country.</p> <p>therefore it is meeting the applicability condition of the methodology applied/17/</p>

The applicable conditions of the applied AMS-I.F, Version 2.0 are justified as follows:

Applicability criteria of the methodology AMS-I.F, Version 2.0	Criteria fulfilled	Validation Team's opinion
<p>1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass that supply electricity to user(s). The project activity will displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit i.e. in the absence of the project activity, the users would have been supplied electricity from one or more sources listed below:</p> <p>(a) A national or a regional grid (grid hereafter);</p> <p>(b) Fossil fuel fired captive power plant;</p> <p>(c) A carbon intensive mini-grid.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>As described in the PoA-DD (Version 06, 13 Nov. 2014)/2/, the proposed PoA will include 4 types of small-scale renewable power plants to generate electricity and supply it to users or mini-grid where in the baseline all generators use exclusively fuel oil and/or diesel fuel: hydro(greenfield), solar (greenfield) and geothermal (greenfield).</p> <p>The project activity will displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit i.e. in the absence of the project activity, the users would have been supplied electricity from two sources listed below:</p> <p>(a) Rwanda national grid (grid hereafter);</p> <p>For CPA displacing electricity from grid, the excess electricity may be supplied to the grid.</p> <p>(b) A carbon intensive mini-grid where in the baseline all generators use exclusively fuel oil and/or diesel fuel.</p> <p>Proposed PoA does not include the CPA supplying electricity to mini grid where energy sources are not fuel oil and/or diesel fuel and the CPA displacing electricity from fossil fuel fired captive power plant.</p> <p>The Validation Team confirms that four of them as stated in the PoA-DD are meeting the applicability condition of the methodology applied/17/.</p>
<p>2. For the purpose of this methodology, a mini-grid is defined as small-scale power system with a total capacity not exceeding 15 MW (i.e. the sum of installed capacities of all generators connected to the mini-grid is equal to or less than 15 MW) which is not connected to a national or a regional grid.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>As demonstrated in the PoA-DD (Version 06, 13 Nov. 2014)/2/, If the mini-grid is included in the CPA, then the mini-grid is defined as small-scale power system with a total capacity not exceeding 15 MW (i.e. the sum of installed capacities of all generators connected to the mini-grid is equal to or less than 15 MW) which is not connected to a national or a regional grid.</p>

		therefore it is meeting the applicability condition of the methodology applied/17/
<p>3. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:</p> <ul style="list-style-type: none"> • The project activity is implemented in an existing reservoir with no change in the volume of reservoir; • The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m²; • The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m². 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>For the small scale hydro power projects as described in the PoA-DD/2/, the CPA shall be either implemented in an existing or new reservoir with the power density greater than 4 W/m².</p> <p>Not applicable for small scale solar and geothermal power project as outlined in the PoA-DD/2/.</p> <p>therefore it is meeting the applicability condition of the methodology applied/17/</p>
<p>4. For biomass power plants, no other biomass other than renewable biomass are to be used in the project plant.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>As outlined in the PoA-DD/2/, no biomass power plant is included in the CPA.</p>
<p>5. This methodology is applicable for project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition, (c) Involve a retrofit of (an) existing plant(s); or (d) Involve a replacement of (an) existing plant(s).</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<p>As demonstrated above, the proposed PoA will include 4 types of small scale renewable power plants to generate electricity and supply it to user or mini-grid where in the baseline all generators use exclusively fuel oil and/or diesel fuel: hydro (greenfield), solar (greenfield) and geothermal (greenfield).</p> <p>therefore it is meeting the applicability condition of the methodology applied/17/</p>
<p>6. In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>According to the PoA-DD (Version 06, 13 Nov. 2014)/2/, the PoA does not include capacity addition at an existing hydropower plant..</p> <p>therefore it is meeting the applicability condition of the methodology applied/17/</p>
<p>7. In the case of retrofit or</p>	<input checked="" type="checkbox"/> Yes	<p>According to the PoA-DD (Version 06,</p>

replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	<input type="checkbox"/> No <input type="checkbox"/> N/A	13 Nov. 2014)/2/, the CPAs as small scale renewable power project do not involve retrofit or replacement. Thus it is not applicable.
8. If the unit added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Not applicable for greenfield hydropower, solar PV power and geothermal power project.
9. Combined heat and power (co-generation) systems are not eligible under this category.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	As outlined in the PoA-DD/2/, the CPAs as small scale renewable power project do not involve combined heat and power. therefore it is meeting the applicability condition of the methodology applied/17/
10. If electricity and/or steam/heat produced by the project activity is delivered to a third party i.e. another facility or facilities within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered that ensures that there is no double counting of emission reductions.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	As outlined in the PoA-DD/2/, for the CPA such as the hydro power (greenfield), solar PV power (greenfield) and geothermal power project (greenfield), and a contract between the supplier and consumers of the electricity will be signed and ensures that there is no double counting of emission reductions. therefore it is meeting the applicability condition of the methodology applied/17/

In conclusion, the Validation Team has assessed each applicability conditions listed in the applied methodology ACM0002, Version 15.0, AMS-I.D, Version 17.0 and AMS-I.F, Version 2.0 and it is to the Validation Team's opinion that the applied methodology is applicable respectively for any type of large scale CPAs and small scale CPAs under the proposed PoA as described in the PoA-DD/2/

3.6.2 Application of multiple methodologies

Applicability criteria of application of multiple methodologies under standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities/15/	Criteria fulfilled	Validation Team's opinion
---	---------------------------	----------------------------------

3.3.1. General requirements Para 28 The CME shall list in the PoA-DD and the generic CPA-DDs various combinations of technologies/measures and/or approved methodologies that will be implemented in the PoA.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	The DG Works as CME has listed in A6 and B3 and Part II of the PoA-DD/2/ various combinations of technologies/measures and approved methodologies that will be implemented in the PoA. Hydro power, solar photovoltaic power and geothermal power will be used in the PoA. ACM0002, Version 15.0/17/, AMS-I.D, Version 17.0/18/ and AMS-I.F, Version 2.0/19/ will be applied in the PoA.
3.3.1. General requirements Para 29 The CME shall define the eligibility criteria for CPA inclusion and, where applicable, sampling plans for each of the combinations separately in accordance with the requirements in section 3.2 above as well as any guidelines/standard approved by the Board pertaining to sampling and surveys. If a CPA uses technologies/measures from several methodologies, it shall be in compliance with all the eligibility criteria derived from the requirements of all the methodologies. These eligibility criteria shall be identified in the validated PoA-DD.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	The CME has defined the eligibility criteria for CPA inclusion in the B2 and Part II of the PoA-DD/2/. The eligibility criteria are in compliance with all the eligibility criteria derived from the requirements of all the methodologies/17//18//19/. These eligibility criteria have been identified in the validated PoA-DD/2/.
3.3.2. Application of multiple small-scale CDM methodologies Para 30 Combinations of technologies/measures and/or methodologies for a PoA are eligible where it is demonstrated that there are no cross effects between the technologies/measures applied. Where such cross effects do exist, the CME shall propose methods to account for such cross effects using the "Requests for deviation from approved methodology" of "Clean development mechanism project cycle procedure" so as to ensure that the calculation of emission reductions is accurate.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Not applicable
3.3.2. Application of multiple small-scale CDM methodologies Para 31 In particular, the following situations for applying combinations of technologies/measures and/or methodologies are eligible under the	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Not applicable

<p>conditions indicated</p> <p>(a) The same combination of technologies/measures under the same combination of methodologies applied consistently in each and every CPA of a PoA. For example, methane recovered from an anaerobic digester to treat animal manure under AMS-III.D is used for heat generation applying AMS-I.C;</p> <p>(b) A single methodology is consistently applied in each CPA of a PoA but using multiple technologies/measures. For example, different waste water treatment technologies can be applied across CPAs within the same PoA, using AMS-III.H;</p> <p>(c) A principle technology/measure is applied consistently in each CPA using multiple combinations of methodologies. For example, wastewater treatment projects¹⁷ with different ways of utilizing recovered methane (AMS-I.C for heat, AMS-I.D and AMS-I.F for electricity, or both), biomass/biogas projects with different fuel displacement (AMS-I.C and AMS-I.I for fossil fuel, AMS-I.E for non-renewable biomass, or both);</p> <p>(d) Combinations of technologies/measures and methodologies vary across CPAs within a PoA and/or multiple and disparate methodologies are used in CPAs to realize the policy or the goal of the PoA. To apply such combinations⁴, the CME shall demonstrate that the implementation of the activities is integrated through the design of the programme, for example:</p> <p>(i) A CME initiates and coordinates different emission reduction activities as part of a city-wide effort to reduce GHG emissions, implementing policy goals adopted by the city or the government. This may include different measures, such as energy production, transport, energy efficiency and waste management;</p> <p>(ii) A CME initiates and coordinates the installation of renewable electricity systems which may include grid-</p>		
---	--	--

⁴ Choosing this option may influence the choices for the sampling plan.

connected and off-grid systems by providing financial incentives for the installation of these systems.		
3.3.2. Application of multiple small-scale CDM methodologies Para 32 The CME may follow the “Guidelines for the consideration of interactive effects for the application of multiple CDM methodologies for a programme of activities” and where necessary seek clarifications on cross effects in the proposed combinations in accordance with the latest applicable procedure by submitting a PoA-DD and CPA-DD with completed sections of detailed technical descriptions. Where possible, these requests shall be considered on priority basis and the response shall be provided within four weeks.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Not applicable
3.3.2. Application of multiple small-scale CDM methodologies Para 33 The compliance of a CPA with the small-scale threshold shall be met by following the “General guidelines to SSC CDM methodologies”.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Not applicable
3.3.3. Application of multiple large-scale CDM methodologies Para 34 For PoAs applying large-scale CDM methodologies, only combinations explicitly permitted in the methodologies can be applied without prior-approval by the Board. In other cases, the CME shall submit a request for clarification to the secretariat by following the latest applicable procedure for the eligibility of the proposed combination. To apply combinations of methodologies not explicitly permitted, justifications to demonstrate the integration through the design of the programme as indicated in paragraph 31(d), should be included in the request for clarification.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Not applicable
3.3.4. Application of combination of multiple large-scale and small-scale CDM methodologies Para 35 In case of a combination of multiple large-scale and small-scale CDM methodologies in a PoA, the same procedures detailed in section 3.3.3 above shall be applied.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Considering combination of multiple large scale CDM methodology ACM0002, Version 15.0 and small scale CDM methodologies such as AMS-I.D, Version 17.0 and AMS-I.F, Version 2.0 are applied in the proposed PoA/2/, prior approval by the

		Board is requested for request for registration of the PoA according to para 3.3.3 referred in para 3.3.4 of the standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities/15/. It is confirmed by reviewing the “response for clarification on the eligibility of the combination of ACM0002, AMS-I.D, AMS-I.A, AMS-I.F and AMS-I.L in a renewable energy PoA” by CDM Methodology Panel/25/ on 22 August 2013 that combination of multiple ACM0002, AMS-I.D, and AMS-I.F is eligible for the PoA.
--	--	---

In conclusion, the Validation Team has assessed each applicable requirements listed in the the standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities/15/ and it is to the Validation Team’s opinion that application of combination of multiple methodologies are eligible for the PoA.

3.6.3 PoA geographical boundary

As per the PoA-DD (Version 06, 13 Nov. 2014)/2/, the PoA will be implemented within the geographical boundary of Rwanda. The boundary of the potential/future CPAs for the PoA has been assessed by considering information gathered from the OSV, interviews, and from description of the gas and sources involved as contained in the PoA-DD (Version 06, 13 Nov. 2014)/2/.

Firstly according to the applied ACM0002, Version 15.0, the spatial extent of the CPA boundary for the large scale renewable power type projects including greenfield hydropower project, solar PV power project and geothermal power project, includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to. The electricity generated by the large scale renewable power type CPAs including hydropower project, solar PV power project and geothermal power project under the proposed PoA will be delivered to Rwanda National grid system. Therefore the boundary of the large scale renewable CPAs under the proposed PoA is defined as the project power plant and all power plants connected physically to Rwanda National grid system.

The CPAs boundary and the selected sources and gases are justified transparently and are presented as below:

Emissions		GHGs involved	Description
Baseline	CO2 emissions	CO ₂	In the absence of the PoA, the same quantity of electricity will be imported from

emissions	from electricity generation in fossil fuel fired power plants that are displaced due to the project activity		Rwanda National grid system that is dominated by fossil fuel fired power plants/26/.
		CH ₄	Excluded – minor emission source
		N ₂ O	Excluded – minor emission source
Project emissions	For geothermal power plants, fugitive emissions of CH ₄ and CO ₂ from non-condensable gases contained in geothermal steam	CO ₂	Not applicable for hydropower plant and solar PV power plant. Main emission source for geothermal power plant
		CH ₄	Not applicable for hydropower plant and solar PV power plant. Main emission source for geothermal power plant
		N ₂ O	Not applicable for hydropower plant and solar PV power plant. Excluded – minor emission source for geothermal power plant
	CO ₂ emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants	CO ₂	Not applicable for hydropower plant and solar PV power plant. Main emission source for geothermal power plant
		CH ₄	Not applicable for hydropower plant and solar PV power plant. Excluded – minor emission source for geothermal power plant
		N ₂ O	Not applicable for hydropower plant and solar PV power plant. Excluded – minor emission source for geothermal power plant

	For hydro power plants, emissions of CH4 from the reservoir	CO ₂	Excluded – minor emission source
		CH ₄	Included only if the power density of the project activity (PD) is greater than 4 W/m ² and less than or equal to 10 W/m ² .
		N ₂ O	Excluded – minor emission source
Leakage		N/A	Neglected as per ACM0002, Version 15.0.

Secondly according to the applied AMS-I.D, Version 17.0, the spatial extent of the CPA boundary for the small scale grid connected renewable power type projects including greenfield hydropower project, solar PV power project and geothermal power project, includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to. The electricity generated by the small scale renewable power type CPAs including hydropower project, solar PV power project and geothermal power project under the proposed PoA will be delivered to Rwanda National grid system. Therefore the boundary of the small scale renewable CPAs under the proposed PoA is defined as the project power plant and all power plants connected physically to Rwanda National grid system.

Finally according to the applied AMS-I.F, Version 2.0, the spatial extent of the CPA boundary for the small scale renewable power type projects including greenfield hydropower project, solar PV power project and geothermal power project, includes industrial, commercial facilities consuming energy generated by the system. In the case of electricity generated and supplied to distributed users (e.g. residential users) via mini/isolated grid(s) the project boundary may be confined to physical, geographical site of renewable generating units. The boundary also extends to the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.

The CPA boundary and the selected sources and gases are justified transparently and are presented as below:

Emissions		GHGs involved	Description
Baseline emissions	CO ₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	CO ₂	In the absence of the PoA, the same quantity of electricity will be imported from Rwanda National grid system that is dominated by fossil fuel fired power plants/26/.
		CH ₄	Excluded – minor emission source
		N ₂ O	Excluded – minor emission source
Project emissions	For geothermal power	CO ₂	Not applicable for hydropower plant and solar PV power plant.

	plants, fugitive emissions of CH ₄ and CO ₂ from non-condensable gases contained in geothermal steam		Main emission source for geothermal power plant
		CH ₄	Not applicable for hydropower plant and solar PV power plant. Main emission source for geothermal power plant
		N ₂ O	Not applicable for hydropower plant and solar PV power plant. Excluded – minor emission source for geothermal power plant
	CO ₂ emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants	CO ₂	Not applicable for hydropower plant and solar PV power plant. Main emission source for geothermal power plant
		CH ₄	Not applicable for hydropower plant and solar PV power plant. Excluded – minor emission source for geothermal power plant
		N ₂ O	Not applicable for hydropower plant and solar PV power plant. Excluded – minor emission source for geothermal power plant
	For hydro power plants, emissions of CH ₄ from the reservoir	CO ₂	Excluded – minor emission source
		CH ₄	Included only if the power density of the project activity (PD) is greater than 4 W/m ² and less than or equal to 10 W/m ² .
		N ₂ O	Excluded – minor emission source

In addition to the above, the CME has defined in the PoA-DD (Version 06, 13 Nov. 2014)/2/, that all CPAs which will be included in the PoA are all located only in Rwanda. Based on the local expert & team experience, the Validation Team confirms that there are no mandatory regulations on the development of small scale or large scale hydropower, solar PV power

and geothermal power plants in Rwanda that mandate the CME to implement the proposed PoA or participating project units to undertake the project activity. The implementation of the PoA remains as a voluntary action.

The Validation Team confirms in the PoA-DD (Version 06, 13 Nov. 2014)/2/ according to the applied methodology, that the project boundary and selected sources of greenhouse gases have been identified in a clear manner for the project activity.

3.6.4 Baseline Identification

3.6.1.1 Large scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA.

As discussed in Section 3.6.1 of this report, the consolidated baseline and monitoring methodology ACM0002, Version 15.0/17/ is applicable for the large scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA.

The baseline scenario for the large scale greenfield and grid connected renewable power CPAs based on hydro, solar PV and geothermal power generation technology under the proposed PoA has been described in the ACM0002, Version 15.0 that is Electricity delivered to the grid by the programme of activities would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system". As per article 115 of the VVS Version 7.0, no other alternatives are to be discussed since the baseline scenario has been prescribed clearly in the approved methodology.

The grid emission factor of Rwanda National Power Grid is estimated as the combined margin (CM), which is the weighted average of the operating margin (OM) emission factor and the build margin (BM) emission factor.

All the assumption and data used by the project participant are listed in the PoA-DD (Version 06, 13 Nov. 2014)/2/. All documentation relevant for establishing the baseline scenario of the large scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA are correctly quoted and interpreted in the PoA-DD (Version 06, 13 Nov. 2014)/2/. 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 (Version 06, 13 Nov. 2014)/2/.

Validation Criteria	Check	Validation Team's Comments
The approved baseline methodology applicable to the PoA - explicit criteria - implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE calculations)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The applied ACM0002, Version 15.0 has been justified to be applicable to the large scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA in the section 3.6.1 of this report.
PoA-DD includes all assumptions	<input checked="" type="checkbox"/> Yes	The PoA-DD (Version 06, 13 Nov. 2014)/2/

and data used by project participants	<input type="checkbox"/> No	includes all assumptions and data according to “ACM0002, Version 15.0” and relative tools/20/.
All the references and documents used are relevant for establishing the baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	“2009 Baseline Emission Factors for National Power Grids in Rwanda” issued by Rwanda DNA on 27 July 2010/26/ are relevant for establishing the baseline scenario according to ACM0002, Version 15.0.
All the references and documents used are correctly quoted and conservatively interpreted in the PoA-DD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All references and documents are confirmed to be correctly quoted and conservatively interpreted in the PoA-DD (Version 06, 13 Nov. 2014)/2/.
All relevant policies / regulations considered are listed in the PoA-DD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The baseline scenario of the large scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA is clearly prescribed in the applied ACM0002, Version 15.0.
Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The baseline scenario of the large scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA is clearly prescribed in the applied ACM0002, Version 15.0.
The baseline scenario selection is appropriate and determined according to the methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The baseline scenario of the large scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA is clearly prescribed in the applied ACM0002, Version 15.0.
The approved methodology used is applicable to the identified baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The approved methodology used is applicable to the identified baseline scenario of the large scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA.

3.6.1.2 Small scale grid connected renewable power CPAs based on hydro (Greenfield), solar PV (Greenfield) and geothermal (Greenfield) power generation technology under the proposed PoA

As discussed in Section 3.6.1 of this report, the simplified baseline and monitoring methodology AMS-I.D, Version 17.0/18/ is applicable for the small scale grid connected

renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA.

The baseline scenario for the small scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA has been described in the AMS-I.D, Version 17.0 that is Electricity delivered to the grid by the programme of activities would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system". As per article 115 of the VVS Version 7.0, no other alternatives are to be discussed since the baseline scenario has been prescribed clearly in the approved methodology.

The grid emission factor of Rwanda National Power Grid is estimated as the combined margin (CM), which is the weighted average of the operating margin (OM) emission factor and the build margin (BM) emission factor.

All the assumption and data used by the project participant are listed in the PoA-DD (Version 06, 13 Nov. 2014)/2/. All documentation relevant for establishing the baseline scenario of the small scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA are correctly quoted and interpreted in the PoA-DD (Version 06, 13 Nov. 2014)/2/. 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 (Version 06, 13 Nov. 2014)/2/.

Validation Criteria	Check	Validation Team's Comments
The approved baseline methodology applicable to the PoA - explicit criteria - implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE calculations)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The applied AMS-I.D, Version 17.0 has been justified to be applicable to the small scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA in the section 3.6.1 of this report.
PoA-DD includes all assumptions and data used by project participants	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The PoA-DD (Version 06, 13 Nov. 2014)/2/ includes all assumptions and data according to "AMS-I.D, Version 17.0"/18/and relative tools/20/.
All the references and documents used are relevant for establishing the baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	"2009 Baseline Emission Factors for National Power Grids in Rwanda" issued by Rwanda DNA on 27 July 2010/26/ are relevant for establishing the baseline scenario according to AMS-I.D, Version 17.0 /18/.
All the references and documents used are correctly quoted and conservatively interpreted in the PoA-DD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All references and documents are confirmed to be correctly quoted and conservatively interpreted in the PoA-DD (Version 06, 13 Nov. 2014)/2/.
All relevant policies / regulations	<input checked="" type="checkbox"/> Yes	The baseline scenario of the small scale grid

considered are listed in the PoA-DD	<input type="checkbox"/> No	connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA is clearly prescribed in the applied AMS-I.D, Version 17.0/18/.
Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The baseline scenario of the small scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA is clearly prescribed in the applied AMS-I.D, Version 17.0/18/.
The baseline scenario selection is appropriate and determined according to the methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The baseline scenario of the small scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA is clearly prescribed in the applied AMS-I.D, Version 17.0/18/.
The approved methodology used is applicable to the identified baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The approved methodology used is applicable to the identified baseline scenario of the small scale grid connected renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA.

3.6.1.3 Mini-grid⁵ connected or captive use small scale renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA.

As discussed in Section 3.6.1 of this report, the simplified baseline and monitoring methodology AMS-I.F, Version 2.0/19/ is applicable for the above stated small scale renewable power CPAs based on hydro (Greenfield), solar PV (Greenfield) and geothermal (Greenfield) power generation technology under the proposed PoA, including Case 5, Case 6, Case7 and Case 8.

The baseline scenario for the mini-grid connected or captive use small scale renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA has been described in the AMS-I.F, Version 2.0/19/ as following”:

The CPAs will displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit i.e. in the absence of the project activity, the users would have been supplied electricity from two sources listed below:

(a) A Rwanda national grid (grid hereafter);

⁵ a mini-grid is defined as small-scale power system with a total capacity not exceeding 15 MW (i.e. the sum of installed capacities of all generators connected to the mini-grid is equal to or less than 15 MW) which is not connected to a national or a regional grid

For CPAs displacing grid electricity used by the identified consumer facilities, the excess electricity may be supplied to the grid.

(b) A mini-grid where in the baseline all generators use exclusively fuel oil and/or diesel fuel.

The proposed PoA does not include the CPAs displacing electricity from mini grid where energy sources are not fuel oil and/or diesel fuel and the CPAs displacing electricity from fossil fuel fired captive power plant.

Baseline emissions of the CPAs are consolidated in the PoA-DD according to the methodology/19/:

(1) For a mini-grid system where all generators use exclusively fuel oil and/or diesel fuel, the baseline emissions is the annual electricity generated by the renewable energy unit times an emission factor of 0.8 kg CO₂e/kWh for a modern diesel generating unit of the relevant capacity operating at optimal load as conservative for all the CPA as described in the PoA-DD/2/.

(2) Baseline emissions for the CPAs displacing the electricity from grid are the product of amount electricity displaced with the electricity produced by the renewable generating unit and an emission factor, which shall be calculated as per the procedures provided in AMS-I.D.

All the assumption and data used by the project participant are listed in the PoA-DD (Version 06, 13 Nov. 2014)/2/. All documentation relevant for establishing the baseline scenario of the small scale renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA are correctly quoted and interpreted in the PoA-DD (Version 06, 13 Nov. 2014)/2/. 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 (Version 06, 13 Nov. 2014)/2/.

Validation Criteria	Check	Validation Team's Comments
The approved baseline methodology applicable to the PoA - explicit criteria - implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE calculations)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The applied AMS-I.F, Version 2.0 has been justified to be applicable to the mini-grid connected or captive use small scale renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA in the section 3.6.1 of this report.
PoA-DD includes all assumptions and data used by project participants	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The PoA-DD (Version 06, 13 Nov. 2014)/2/ includes all assumptions and data according to "AMS-I.F, Version 2.0"/19/.
All the references and documents used are relevant for establishing the baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	"2009 Baseline Emission Factors for National Power Grids in Rwanda" issued by Rwanda DNA on 27 July 2010/26/ are relevant for establishing the baseline scenario according to AMS-I.F, Version 2.0/19/.
All the references and documents used are correctly quoted and	<input checked="" type="checkbox"/> Yes	All references and documents are confirmed to be correctly quoted and conservatively

conservatively interpreted in the PoA-DD	<input type="checkbox"/> No	interpreted in the PoA-DD (Version 06, 13 Nov. 2014)/2/.
All relevant policies / regulations considered are listed in the PoA-DD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The baseline scenario of the mini-grid connected or captive use small scale renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA is clearly prescribed in the applied AMS-I.F, Version 2.0/19/.
Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The baseline scenario of the mini-grid connected or captive use small scale renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA is clearly prescribed in the applied AMS-I.F, Version 2.0/19/.
The baseline scenario selection is appropriate and determined according to the methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The baseline scenario of the mini-grid connected or captive use small scale renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA is clearly prescribed in the applied AMS-I.F, Version 2.0/19/.
The approved methodology used is applicable to the identified baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The approved methodology used is applicable to the identified baseline scenario of the mini-grid connected or captive use small scale renewable power CPAs based on hydro (greenfield), solar PV (greenfield) and geothermal (greenfield) power generation technology under the proposed PoA.

To the Validation Team's opinion, the selected baseline methodology ACM0002, Version 15.0, AMS-I.D, Version 17.0 and AMS-I.F, Version 2.0 has been correctly applied respectively to identify the baseline scenarios of various types of CPAs under the proposed PoA and the identified baseline scenarios reasonably represent what would occur in the absence of the proposed PoA as described in the PoA-DD/2/.

3.7 Additionality

3.7.1 Prior Consideration of the CDM

As per VVS, Version 5.0/7/, the assessment of prior consideration of the CDM for the PoA could be carried out according to the provisions of paragraph 194&107 in VVS for the purpose of determining the start date of the PoA referred in the para.159 of PS/8/.

The start date of the PoA is determined as the date of the Notification of the intention to seek the CDM status to the host DNA/34/, i.e. 06 May 2013 while the notification to UNFCCC is

occurred on 29 April 2013, for which the CME as the project participant considers the date of notification to DNA is conservative than the date of notification to UNFCCC.

The Validation Team considers that the evidence regarding prior consideration of the CDM of the PoA is considered reasonable since the start date is after 02 August 2008 according to para 107 of VVS/7/.

3.7.2 Additionality of the PoA as a whole

The PoA applies the “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities” Version 03 /15/ to demonstrate additionality.

After having reviewed “Letter of Approval”/3/ and on-site interview with the representatives’ /i//ii/ of the CME, the Validation Team confirms that participating in the proposed PoA is a voluntary coordinated action by CME. There are no mandatory requirements in Rwanda requiring any individuals or entities to utilize hydro, solar PV and geothermal energy for electricity generation.

According to PoA-DD Part I, Section B.1, the additionality will be demonstrated on CPA-level that its project activity would not have occurred anyway due to the justified barrier.

As sufficiently demonstrated in the section B.1 of the PoA-DD (Version 06, 13 Nov. 2014)/2/, the small-scale or large scale hydro/solar PV/geothermal power projects in Rwanda can be experiencing financial and institutional barriers due to low rates of return on investment of such projects compared to the benchmark rate of return expected from projects in the power sector. As a result, it is unlikely to attract investors and get loan from the commercial bank for the development of such projects in Rwanda.

The validation team has assessed the additionality of a PoA in accordance with the “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”/15/. The validation team concluded that the CME will demonstrate that none of the CPA would be implemented under absence of CDM support.

3.7.3 Approach for demonstrating additionality of CPA under the PoA

The additionality for a specific CPA will be assessed at CPA level before the inclusion of the CPA in the PoA.

Detailed demonstration is as follows:

1. For CPAs up to 5 MW located in the host country, according to the PoA-DD Part II, the additionality of a generic CPA shall be demonstrated according to “Guidelines for demonstrating additionality of microscale project activities, Version 05”/14/.
2. For the CPA >5 MW and ≤15MW, according to the PoA-DD Part II, the additionality of a generic CPA shall be demonstrated according to “Guidelines on the demonstration of additionality of small scale project activities, Version 09.0”/13/. The PoA-DD (Version 06, 13 Nov. 2014)/2/ selects one of the following methods such as Investment barrier analysis; access to finance barrier; technology barrier analysis; barrier due to prevailing practice; first-of-its-kind barrier shall be demonstrated..

As per the Para 2 of “Guidelines on the demonstration of additionality of small scale project activities, Version 09.0”/13/, if the installed capacity of the CPA is no more than 15MW and the technology applied by the CPA is included in the positive list as described in the Guideline/13/, the project activity is considered additional automatically.

3. For the CPA >15MW, according to the PoA-DD Part II, the additionality of a generic CPA shall be demonstrated according to the methodological tool “Tool for the demonstration and assessment of additionality”, Version 7.0.0”/21/.

When investment analysis is used for the demonstration of additionality for large scale CPAs, option (i) of paragraph 13 (a) of the Standard “Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of Activities”, version 3 will be selected.

The following parameters are defined for the investment analysis:

Parameter	Unit	Source
Electricity generation	MWh	(Pre-) Feasibility Study Report (FSR), Power Purchase Agreement) PPA
Total investment	USD	Quotation, or Engineering and Procurement Contract (EPC)
Energy price	USD/MWh	PPA, or nationally published tariffs, or external tariffs estimation
Power price	USD/MW	PPA, or nationally published tariffs, or external tariffs estimation
Installed capacity	MW	Pre-FSR; FSR
Load factor	%	Pre-FSR; FSR
Transmission costs	USD/MWh, or USD/Year	Pre-FSR; FSR, or external report
O&M (fixed and variable)	USD/Year	Quotation, or estimated standard value on the market
Applicable Taxe(s)	USD/Year	Local tax laws
Insurance	USD/Year	Quotation, or estimated standard value on the market
Technical lifetime of equipment	# of Years	Manufacturer spec, or external source/spec/study
Exchange Rate	RWF/USD	Exchange rate as per date of investment
Residual value	USD	Calculated as per local accounting regulations, or international best practice
Additional parameters might be defined and used if applicable in case of specific CPA. All values used must be valid at the time of investment decision-making.		
Benchmark:		

Benchmark	Value	Source
Commercial lending rate	%	Standard parameters in the market appropriate to the project activity and a project IRR calculation, sourced from: Central bank, private banks, or other private institutions.
Weighted average costs of capital (WACC)	%	Standard parameters in the market appropriate to the project activity and a project IRR calculation. Cost of equity determined by: a) Values provided in Appendix A of "Guideline on the Assessment of Investment Analysis", or b) Calculated using the best financial practices: <ul style="list-style-type: none"> • Dividend growth model, or • Capital Asset Pricing Model (CAPM)
Required expected return on equity	%	Standard parameters in the market appropriate to the project activity and equity IRR calculation. Cost of equity determined by: a) Values provided in Appendix A of "Guideline on the Assessment of Investment Analysis", or b) Calculated using the best financial practices: <ul style="list-style-type: none"> • Dividend growth model, or • Capital Asset Pricing Model (CAPM)
Benchmarks supplied by relevant national authorities	%	Standard parameters in the market applicable to the project activity and the type of IRR calculation supplied from: Government bond rates, or other relevant national authority.

DOE confirms that the definition of the input parameters that will be used in the investment analysis and the description of how the values for these parameters will be obtained for each CPA are stated as per the paragraph 13 of "Standard on demonstration of additionality, development of eligibility criteria and application of multiple methodologies for PoAs", Version 03.0/15/.

Therefore, the additionality is in line with requirement of "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities", Version 03.0/15/. The CPAs that meet the eligibility criteria for inclusion in the PoA would therefore be deemed additional.

3.8 GHG Emission Reductions from Generic CPAs

3.8.1.1 GHG emission reductions from grid connected large scale renewable power generation CPAs under the PoA

As per equation 11 of ACM0002, Version 15.0, the emission reductions achieved by the CPA are calculated by:

$$ER_y = BE_y - PE_y$$

Where:

ER_y Emission reductions in year y (tCO₂/y)

BE_y Baseline emissions in year y (tCO₂/y)

PE_y Project emissions in year y (tCO₂/y)

Baseline Emissions

- 1) for a green-field large scale hydropower power/solar PV power/ geothermal project that supplies electricity to the grid, the baseline emissions (BE_y) are calculated in line with equation 6 and equation 7 of ACM0002, Version 15.0 as follows:

$$BE_y = EG_{PJ,y} \cdot EF_{grid,CM,y}$$

$$EG_{PJ,y} = EG_{facility,y}$$

Where:

BE_y Baseline Emissions in year y (tCO₂)

$EG_{PJ,y}$ Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)

$EF_{grid,CM,y}$ Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO₂/MWh)

$EG_{facility,y}$ Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

Assessment of grid CM emission factor:

According to the "Tool to calculate the emission factor for an electricity system"/20/, the combined margin emission factor for the CPAs for greenfield hydro power project and greenfield geothermal power project as 0.7044 tCO₂/MWh and for greenfield solar PV power project as 0.7063 tCO₂/MWh in the PoA-DD (Version 06, 13 Nov. 2014/2/ has been assessed by the Validation Team as follows:

- 1.) The grid emission factor is ex ante determined at PoA level once at the validation stage and fixed during the 1st crediting period of PoA which is updated every seven years. The grid emission factor calculation presented in each generic CPA as described in the

PoA-DD is in line with para 88-90 of the Tool/20/ and para 164-168 of PS/8/, i.e. fixed during the 1st crediting period of PoA.

- 2.) The electricity generated by any CPA under the PoA will be supplied to the Rwanda National Power Grid. According to the delineation of power grids, the Rwanda National Power Grid is identified as the project electricity system of any CPA under the PoA;
- 3.) The Validation Team has assessed the calculation of the Operating Margin (OM) and the Build Margin (BM) in the PoA-DD (Version 06, 13 Nov. 2014)/2/ and confirmed they are derived from data published on 27 July 2010 by DNA of the host country/26/ with data vintage from year 2005 to 2009. The Validation Team has confirmed the data used for calculation of OM and BM is latest available at the time of submission for validation by reviewing the official website of EWSA (Energy, Water and Sanitation Authority) (which is sole national utility to distribute power and water in Rwanda)/36/ where there is the power plant installed capacity data updated on 23 June 2013 and the year of operation of power plants updated until 2009. As a result, the Validation Team confirms that the OM emission factor of 0.7082 tCO₂e/MWh and BM emission factor of 0.7007 tCO₂e/MWh in the PoA-DD (Version 06, 13 Nov. 2014)/2/ for all the CPAs as described in section 3.8.1.1 of the report under the proposed project, are fully in line with DNA of Rwanda/26/.

The Validation Team confirms that the Combined Margin (CM) is calculated correctly as follows:

According to "Tool to calculate the emission factor for an electricity system"/20/, the most recent data available at the time of submission of the project to the DOE for validation should be used for calculating the grid emission factor. The PoA DD was published for global stakeholder consultation (GSC) on 05/09/2013.

It is observed and confirmed by Rwanda DNA official website/26/ that the most recent available grid emission factor is the grid emission factor published on 27/07/2010 by Rwanda DNA with data vintage from year 2005- 2009.

Secondly, it is observed and confirmed by Rwanda DNA official website/26/ that Rwanda DNA invited tender for calculation of the 2010 grid emission factor on 3 November 2011 while there is no update until now.

Finally, EWSA (Energy, Water and Sanitation Authority) is the sole national utility distributing power and water in Rwanda. The data used for grid emission factor calculation are provided by EWSA. It is found from EWSA official website/36/ that the power plant installed capacity data were updated on 23/06/2013 and the year of operation of power plant was also only updated until 2009.

Therefore, it is concluded by above substantiation that the grid emission factor made publicly available by Rwanda DNA on 27/07/2010 was most recent available at the time of GSC of the PoA-DD.

The default weights of 75% OM and 25% BM for the first crediting period and for subsequent crediting periods have been correctly selected and properly applied for greenfield solar PV power CPA in the PoA-DD (Version 06, 13 Nov. 2014)/2/, in accordance with the "Tool to calculate the emission factor for an electricity system"/20/.

The default weights of 50% OM and 50% BM for the first crediting period have been correctly selected and properly applied for greenfield geothermal power CPA and

hydropower greenfield CPA in the PoA-DD (Version 06, 13 Nov. 2014)/2/, and the default weights of 25% OM and 75% BM for the second and third crediting period will be applied instead in accordance with the "Tool to calculate the emission factor for an electricity system"/20/.

In conclusion, the Validation Team confirms that the grid CM emission factor for the large scale grid connected renewable power CPAs under the PoA is appropriately calculated as 0.7044 tCO₂/MWh for greenfield hydro power project and greenfield geothermal power project and 0.7063 tCO₂/MWh for greenfield solar PV power project in the PoA-DD (Version 06, 13 Nov. 2014), based on the most recent data available at the time of PoA-DD (Version 01, 22 Jun. 2013) published for GSC on 5th September 2013 at the UNFCCC website.

Project Emissions

- For geothermal power generation CPAs,

As per equation 1 of ACM0002, Version 15.0/17/, project emissions from geothermal power plants are calculated as follows:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y	Project emissions in year y (tCO ₂ e/yr)
$PE_{FF,y}$	Project emissions from fossil fuel consumption in year y (tCO ₂ e/yr)
$PE_{GP,y}$	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ e/yr)
$PE_{HP,y}$	Project emissions from water reservoirs of hydro power plants in year y (tCO ₂ e/yr)

The CPAs under the PoA are to utilize renewable geothermal energy to generate electricity, therefore, the project emission can be simplified by using the following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y}$$

Where:

PE_y is project emissions in year y (tCO₂/yr);

$PE_{FF,y}$ is the project emission from fossil fuel consumption in year y (tCO₂/yr), which is calculated as per the latest version of the "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion"/22/ as per para 20 of AMS-I.F, Version 2.0.

$PE_{GP,y}$ is the project emissions from operation of geothermal power plants due to the release of non-condensable gases in year y (tCO₂/yr);

$PE_{GP,y}$ is calculated as follows:

$$PE_{GP,y} = (w_{\text{steam,CO}_2,y} + w_{\text{steam,CH}_4,y} * GWP_{\text{CH}_4}) * M_{\text{steam,y}}$$

Where:

$PE_{GP,y}$	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ e/yr)
$w_{steam,CO_2,y}$	Average mass fraction of carbon dioxide in the produced steam in year y (tCO ₂ /t steam)
$w_{steam,CH_4,y}$	Average mass fraction of methane in the produced steam in year y (tCH ₄ /t steam)
GWP_{CH_4}	Global warming potential of methane valid for the relevant commitment period (tCO ₂ e/tCH ₄)
$M_{steam,y}$	Quantity of steam produced in year y (t steam/yr)

- For solar PV power generation CPAs,

Project emission for solar PV power project is zero as per ACM0002, Version 15.0/17/.

- For hydro power generation CPAs,

As per equation 1 of ACM0002, Version 15.0/17/, project emissions from hydro power plants are calculated as follows:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y	Project emissions in year y (tCO ₂ e/yr)
$PE_{FF,y}$	Project emissions from fossil fuel consumption in year y (tCO ₂ e/yr)
$PE_{GP,y}$	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ e/yr)
$PE_{HP,y}$	Project emissions from water reservoirs of hydro power plants in year y (tCO ₂ e/yr)

The CPAs under the PoA are to utilize renewable hydro power to generate electricity without consuming any fossil fuel, the project emission can be simplified by using the following equation:

$$PE_y = PE_{HP,y}$$

- (a) If the power density of the project activity (PD) is greater than 4 W/m² and less than or equal to 10 W/m²:

$$PE_{HP,y} = \frac{EF_{Res} \times TEG_y}{1000}$$

Where:

EF_{Res}	Default emission factor for emissions from reservoirs of hydro power plants in year y (kgCO ₂ e/MWh)
------------	---

TEG_y Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (MWh/yr)

(b) If the power density of the project activity (PD) is greater than 10 W/m²:

$$PE_{HP,y} = 0$$

The power density of the project activity (PD) is calculated as follows:

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$$

Where:

PD	Power density of the project activity (W/m ²)
Cap _{PJ}	Installed capacity of hydro power plant after the implementation of the project activity (W)
Cap _{BL}	Installed capacity of the hydro power before the implementation of the project activity (W). For new hydro power plants, this value is zero
A _{PJ}	Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m ²)
A _{BL}	Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m ²). For new reservoirs, this value is zero

3.8.1.2 GHG emission reductions from grid connected small scale renewable power generation CPAs under the PoA

As per Para.23 of AMS-I.D, Version 17.0, the emission reductions achieved by the CPA are calculated by:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER _y	Emission reductions in year y (tCO ₂ /y)
BE _y	Baseline emissions in year y (tCO ₂ /y)
PE _y	Project emissions in year y (tCO ₂ /y)
LE _y	Leakage emissions in year y (tCO ₂ /y)

Baseline Emissions

2) for a green-field small scale geothermal power/solar PV power/ hydropower project that supplies electricity to the grid, the baseline emissions (BE_y) are calculated in line with Para.11 of AMS-I.D, Version 17.0 as follows:

$$BE_y = EG_{BL,y} \times EF_{CO_2,grid,y}$$

Where:

BE_y	Baseline Emissions in year y (tCO ₂)
$EG_{BL,y}$	Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)
$EF_{CO_2,grid,y}$	CO ₂ emission factor of the grid in year y (tCO ₂ /MWh)

Assessment of grid CM emission factor:

as discussed in section 3.8.1.1, the Validation Team confirms that the grid CM emission factor for the small scale grid connected renewable power CPAs as described in section 3.8.1.2 of this report under the PoA is appropriately calculated as 0.7044 tCO₂/MWh for greenfield hydro power project and greenfield geothermal power project and 0.7063 tCO₂/MWh for greenfield solar PV power project in the PoA-DD (Version 06, 13 Nov. 2014), based on the most recent data available at the time of PoA-DD (Version 01, 22 Jun. 2013) published for GSC on 5th September 2013 at the UNFCCC website.

Project Emissions

For geothermal power generation CPAs,

As per Para.20 of AMS-I.D, Version 17.0, project emissions from geothermal power plants have to be considered following the procedure described in the most recent version of ACM0002/17/ at the time of validation and the detailed calculation is shown as follows:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y	Project emissions in year y (tCO ₂ e/yr)
$PE_{FF,y}$	Project emissions from fossil fuel consumption in year y (tCO ₂ e/yr)
$PE_{GP,y}$	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ e/yr)
$PE_{HP,y}$	Project emissions from water reservoirs of hydro power plants in year y (tCO ₂ e/yr)

The CPAs under the PoA are to utilize renewable geothermal energy to generate electricity, therefore, the project emission can be simplified by using the following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y}$$

Where:

PE_y is project emissions in year y (tCO₂/yr);

$PE_{FF,y}$ is the project emission from fossil fuel consumption in year y (tCO₂/yr), which is calculated as per the latest version of the "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion"/22/ as per para 20 of AMS-I.F, Version 2.0.

$PE_{GP,y}$ is the project emissions from operation of geothermal power plants due to the release of non-condensable gases in year y (tCO₂/yr);

$PE_{GP,y}$ is calculated as follows:

$$PE_{GP,y} = (w_{steam,CO_2,y} + w_{steam,CH_4,y} * GWP_{CH_4}) * M_{steam,y}$$

Where:

$PE_{GP,y}$	= Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ e/yr)
$w_{steam,CO_2,y}$	= Average mass fraction of carbon dioxide in the produced steam in year y (tCO ₂ /t steam)
$w_{steam,CH_4,y}$	= Average mass fraction of methane in the produced steam in year y (tCH ₄ /t steam)
GWP_{CH_4}	= Global warming potential of methane valid for the relevant commitment period (tCO ₂ e/tCH ₄)
$M_{steam,y}$	= Quantity of steam produced in year y (t steam/yr)

For solar PV power generation CPAs,

Project emission is zero as described in the most recent version of ACM0002/17/ at the time of validation.

For hydro power generation CPAs,

As per Para.20 of AMS-I.D, Version 17.0, project emissions from hydro power plants have to be considered following the procedure described in the most recent version of ACM0002/17/ at the time of validation and the detailed calculation is shown as follows:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y	Project emissions in year y (tCO ₂ e/yr)
$PE_{FF,y}$	Project emissions from fossil fuel consumption in year y (tCO ₂ e/yr)
$PE_{GP,y}$	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ e/yr)
$PE_{HP,y}$	Project emissions from water reservoirs of hydro power plants in year y (tCO ₂ e/yr)

The CPAs under the PoA are to utilize renewable hydro power to generate electricity without consuming any fossil fuel, the project emission can be simplified by using the following equation:

$$PE_y = PE_{HP,y}$$

(c) If the power density of the project activity (PD) is greater than 4 W/m² and less than or equal to 10 W/m²:

$$PE_{HP,y} = \frac{EF_{Res} \times TEG_y}{1000}$$

Where:

EF_{Res}	Default emission factor for emissions from reservoirs of hydro power plants in year y (kgCO ₂ e/MWh)
TEG_y	Total electricity produced by the project activity, including the electricity supplied

to the grid and the electricity supplied to internal loads, in year y (MWh/yr)

(d) If the power density of the project activity (PD) is greater than 10 W/m²:

$$PE_{HP,y} = 0$$

The power density of the project activity (PD) is calculated as follows:

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$$

Where:

PD	Power density of the project activity (W/m ²)
Cap _{PJ}	Installed capacity of hydro power plant after the implementation of the project activity (W)
Cap _{BL}	Installed capacity of the hydro power before the implementation of the project activity (W). For new hydro power plants, this value is zero
A _{PJ}	Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m ²)
A _{BL}	Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m ²). For new reservoirs, this value is zero

Leakage

As per the eligibility criteria for inclusion of the CPAs into the PoA contained in the PoA-DD (Version 06, 13 Nov. 2014)/2/, the energy generating equipment by any CPA is not transferred from another activity; therefore the leakage is not necessarily to be considered in line with the Para. 22 of the applied AMS-I.D, Version 17.0/18/.

3.8.1.3 GHG emission reductions from mini-grid connected or captive use small scale renewable power generation CPAs under the PoA

As per para 22 of AMS-I.F, Version 2.0/19/, the emission reductions achieved by the CPA are calculated by:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER _y	Emission reductions in year y (tCO ₂ /y)
BE _y	Baseline emissions in year y (tCO ₂ /y)
PE _y	Project emissions in year y (tCO ₂ /y)
LE _y	Leakage emissions in year y (tCO ₂ /y)

Baseline Emissions

(1) for a green-field mini-grid connected or captive use small scale geothermal power/solar PV power/ hydropower project that supplies electricity to the grid, the baseline emissions (BE_y) are calculated in line with para 13/14 of AMS-I.F, Version 2.0/19/ as follows:

- (a) For a mini-grid system where all generators use exclusively fuel oil and/or diesel fuel, the baseline emissions is the annual electricity generated by the renewable energy unit times an emission factor for a modern diesel generating unit of the relevant capacity operating at optimal load as given in Table I.F.1.

Table I.F.1

Emission Factors for diesel generator systems (in kg CO₂e/kWh*) for three different levels of load factors**

Cases:	Mini-grid with 24 hour service	i) Mini-grid with temporary service (4-6 hr/day); (ii) Productive applications; (iii) Water pumps	Mini-grid with storage
			100%
Load factors [%]	25%	50%	
<15 kW	2.4	1.4	1.2
>=15 <35 kW	1.9	1.3	1.1
>=35 <135 kW	1.3	1.0	1.0
>=135 <200 kW	0.9	0.8	0.8
> 200 kW***	0.8	0.8	0.8

*A conversion factor of 3.2 kg CO₂ per kg of diesel has been used (following revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories)

**Values derived from figures reported in RETScreen International's PV 2000 model retrieved from: ><http://retscreen.net/>>

***Default values

It is confirmed as conservative that it is determined in the PoA-DD/2/ to choose emission factor of 0.8 kg CO₂e/kWh for all the CPAs included in this category.

(2) Baseline emissions for the CPAs displacing the electricity from grid at the user end are the product of amount electricity displaced with the electricity produced by the renewable generating unit and an emission factor, which is calculated as per the procedures provided in AMS-I.D/18/.

$$BE_y = EG_{BL,y} * EF_{CO_2,y}$$

Where:

BE_y Baseline Emissions in year y (tCO₂)

$EG_{BL,y}$ Quantity of net electricity displaced as a result of the implementation of the CDM project activity in year y (MWh)

$EF_{CO_2,y}$ Emission factor (tCO₂/MWh)

- Emission factor of a grid shall be calculated as per the procedures provided in AMS-I.D/18/;

According to AMS-I.D., the emission factor can be calculated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the "Tool to calculate the Emission Factor for an electricity system"/20/.

Assessment of grid CM emission factor:

as discussed in section 3.8.1.1, the Validation Team confirms that the grid CM emission factor for the small scale grid connected renewable power CPAs as described in section 3.8.1.3 (1) (b) of this report under the PoA is appropriately calculated as 0.7044 tCO₂/MWh for greenfield hydro power project and greenfield geothermal power project and 0.7063 tCO₂/MWh for greenfield solar PV power project in the PoA-DD (Version 06, 13 Nov. 2014), based on the most recent data available at the time of PoA-DD (Version 01, 22 Jun. 2013) published for GSC on 5th September 2013 at the UNFCCC website.

Project Emissions

For geothermal power generation CPAs,

As per para 19 of AMS-I.F, Version 2.0, project emissions from geothermal power plants have to be considered following the procedure described in the most recent version of ACM0002/17/ at the time of validation and the detailed calculation is shown as follows:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y	Project emissions in year y (tCO ₂ e/yr)
$PE_{FF,y}$	Project emissions from fossil fuel consumption in year y (tCO ₂ e/yr)
$PE_{GP,y}$	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ e/yr)
$PE_{HP,y}$	Project emissions from water reservoirs of hydro power plants in year y (tCO ₂ e/yr)

The CPAs under the PoA are to utilize renewable geothermal energy to generate electricity, therefore, the project emission can be simplified by using the following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y}$$

Where:

PE_y is project emissions in year y (tCO₂/yr);

$PE_{FF,y}$ is the project emission from fossil fuel consumption in year y (tCO₂/yr), which is calculated as per the latest version of the "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion"/22/ as per para 20 of AMS-I.F, Version 2.0.

$PE_{GP,y}$ is the project emissions from operation of geothermal power plants due to the release of non-condensable gases in year y (tCO₂/yr);

$PE_{GP,y}$ is calculated as follows:

$$PE_{GP,y} = (w_{\text{steam,CO}_2,y} + w_{\text{steam,CH}_4,y} * GWP_{\text{CH}_4}) * M_{\text{steam,y}}$$

Where:

$PE_{GP,y}$	= Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ e/yr)
$w_{steam,CO_2,y}$	= Average mass fraction of carbon dioxide in the produced steam in year y (tCO ₂ /t steam)
$w_{steam,CH_4,y}$	= Average mass fraction of methane in the produced steam in year y (tCH ₄ /t steam)
GWP_{CH_4}	= Global warming potential of methane valid for the relevant commitment period (tCO ₂ e/tCH ₄)
$M_{steam,y}$	= Quantity of steam produced in year y (t steam/yr)

For solar PV power generation CPAs,

Project emission is zero described in the most recent version of ACM0002/17/ at the time of validation.

For hydro power generation CPAs,

As per para 19 of AMS-I.F, Version 2.0, project emissions from hydro power plants have to be considered following the procedure described in the most recent version of ACM0002/17/ at the time of validation and the detailed calculation is shown as follows:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y	Project emissions in year y (tCO ₂ e/yr)
$PE_{FF,y}$	Project emissions from fossil fuel consumption in year y (tCO ₂ e/yr)
$PE_{GP,y}$	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ e/yr)
$PE_{HP,y}$	Project emissions from water reservoirs of hydro power plants in year y (tCO ₂ e/yr)

The CPAs under the PoA are to utilize renewable hydro power to generate electricity without consuming any fossil fuel, the project emission can be simplified by using the following equation:

$$PE_y = PE_{HP,y}$$

(e) If the power density of the project activity (PD) is greater than 4 W/m² and less than or equal to 10 W/m²:

$$PE_{HP,y} = \frac{EF_{Res} \times TEG_y}{1000}$$

Where:

EF_{Res}	Default emission factor for emissions from reservoirs of hydro power plants in year y (kgCO ₂ e/MWh)
TEG_y	Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (MWh/yr)

(f) If the power density of the project activity (PD) is greater than 10 W/m²:

$$PE_{HP,y} = 0$$

The power density of the project activity (PD) is calculated as follows:

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$$

Where:

PD	Power density of the project activity (W/m ²)
Cap _{PJ}	Installed capacity of hydro power plant after the implementation of the project activity (W)
Cap _{BL}	Installed capacity of the hydro power before the implementation of the project activity (W). For new hydro power plants, this value is zero
A _{PJ}	Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m ²)
A _{BL}	Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m ²). For new reservoirs, this value is zero

Leakage

As per the eligibility criteria for inclusion of the CPAs into the PoA contained in the PoA-DD (Version 06, 13 Nov. 2014)/2/, the energy generating equipment by any CPA is not transferred from another activity; therefore the leakage is not necessarily to be considered in line with the Para. 21 of the applied AMS-I.F, Version 2.0/19/.

Emission Reductions for sections above stated

Based on the calculations presented in the sections above the implementation of the PoA will result in emission reduction during the crediting period.

All assumptions and data used by the project participant are listed in the PoA-DD (Version 06, 13 Nov. 2014)/2/ and/or supporting documents, including their references and sources. All documentation used by the project participant as the basis for assumptions and source of data is correctly quoted and interpreted in the PoA-DD (Version 06, 13 Nov. 2014). All values used in the PoA-DD (Version 06, 13 Nov. 2014) 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 (Version 06, 13 Nov. 2014). The table below summaries Validation Team's determination of emission reduction:

Validation Criteria	Check	Validation Team's Comments
All assumptions made for estimating GHG are listed in the PoA-DD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All the assumptions made for estimating GHG have been confirmed to be listed in the PoA-DD (Version 06, 13 Nov. 2014). The main assumptions

		are in line with the published “2009 Baseline Emission Factors for National Power Grids in Rwanda ”/26/.
All data used by project participants are listed in the PoA-DD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per the PoA-DD (Version 06, 13 Nov. 2014).
Their references and sources are also listed in the PoA-DD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per the PoA-DD (Version 06, 13 Nov. 2014).
Formulas, parameters, values are complete, accurate, transparent and conservative	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per the PoA-DD (Version 06, 13 Nov. 2014).
All the references and documents used are correctly quoted and conservatively interpreted in the PoA-DD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per the PoA-DD (Version 06, 13 Nov. 2014).
Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per the PoA-DD (Version 06, 13 Nov. 2014).
All the emissions of baseline emissions can be replicated using information provided in the PoA-DD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per the PoA-DD (Version 06, 13 Nov. 2014).

To the Validation Team’s opinion, the emission reductions are calculated according to the baseline methodologies/17//18//19/. The parameters and data for the calculations are sourced from public available data sources and are clearly listed out in the PoA-DD (Version 06, 13 Nov. 2014)/2/.

3.9 Monitoring Plan

As described in the PoA-DD (Version 06, 13 Nov. 2014), there are 9 typical CPAs involved in the PoA. The monitoring plans for 9 typical CPAs, as described individually in the Part II of the PoA-DD (Version 06, 13 Nov. 2014) are confirmed to be documented respectively in line with the requirements of ACM0002, Version 15.0/17/, AMS-I.D, Version 17.0/18/ and AMS-I.F, Version 2.0/19/.

3.9.1 Parameters determined ex-ante of 9 typical CPAs

The following data and parameters were determined once at the validation stage of proposed PoA and will remain fixed throughout the first crediting period of PoA:

Scenario 1&9: Greenfield hydropower grid-connected project for both large scale and small scale

Parameter	Value	Means of Validation
A _{BL}	To be specified for individual CPA.	Confirmed in line with the referenced ACM0002 version 15.0.0

Cap _{BL}	0	Confirmed in line with the referenced ACM0002 version 15.0.0
EF _{CO₂,grid,y}	0.7044 tCO ₂ e/MWh	The baseline grid emission factor is determined ex-ante, based on the most recent information available, and is calculated as a combined margin, consisting of the weighted average of the OM and BM emission coefficients. This combined margin emission coefficient will remain fixed during the first crediting period. The ex-ante parameters applied in the calculation have been validated and discussed in the section 3.6.4 of this report, and the Validation Team confirms that the calculation of the OM, BM and CM is applicable and valid at the time of starting validation.

Scenario 2&8: Greenfield solar PV grid-connected power project for both large scale and small scale

<i>Parameter</i>	<i>Value</i>	<i>Means of Validation</i>
EF _{CO₂,grid,y}	0.7063 tCO ₂ e/MWh	The baseline grid emission factor is determined ex-ante, based on the most recent information available, and is calculated as a combined margin, consisting of the weighted average of the OM and BM emission coefficients. This combined margin emission coefficient will remain fixed during the first crediting period. The ex-ante parameters applied in the calculation have been validated and discussed in the section 3.6.4 of this report, and the Validation Team confirms that the calculation of the OM, BM and CM is applicable and valid at the time of starting validation.

Scenario 3&7: Greenfield geothermal grid-connected power project for both large scale and small scale

<i>Parameter</i>	<i>Value</i>	<i>Means of Validation</i>
GWP _{CH₄}	For the first commitment period: 21 tCO ₂ e/tCH ₄	Confirmed in line with the applied ACM0002, Version 15.0

EF _{CO₂,grid,y}	0. 7044 tCO ₂ e/MWh	The baseline grid emission factor is determined ex-ante, based on the most recent information available, and is calculated as a combined margin, consisting of the weighted average of the OM and BM emission coefficients. This combined margin emission coefficient will remain fixed during the first crediting period. The ex-ante parameters applied in the calculation have been validated and discussed in the section 3.6.4 of this report, and the Validation Team confirms that the calculation of the OM, BM and CM is applicable and valid at the time of starting validation.
-------------------------------------	--------------------------------	--

Scenario 6: Greenfield mini-grid connected or captive use small scale hydropower project

<i>Parameter</i>	<i>Value</i>	<i>Means of Validation</i>
A _{BL}	To be specified for individual CPA.	Confirmed in line with the referenced ACM0002 version 15.0.0
Cap _{BL}	0	Confirmed in line with the referenced ACM0002 version 15.0.0
EF _{CO₂,grid,y}	0.7044 tCO ₂ e/MWh for displacing grid electricity consumed by the user.	The baseline grid emission factor is determined ex-ante, based on the most recent information available, and is calculated as a combined margin, consisting of the weighted average of the OM and BM emission coefficients. This combined margin emission coefficient will remain fixed during the first crediting period. The ex-ante parameters applied in the calculation have been validated and discussed in the section 3.6.4 of this report, and the Validation Team confirms that the calculation of the OM, BM and CM is applicable and valid at the time of starting validation.
EF _{CO₂,y}	0.8 tCO ₂ /MWh for supplying electricity to mini-grid where all generators use exclusively fuel oil and/or diesel fuel;	Confirmed in line with the referenced AMS-I.F, Version 2.0

Scenario 5: Greenfield mini-grid connected or captive use small scale solar PV power project

<i>Parameter</i>	<i>Value</i>	<i>Means of Validation</i>
EF _{CO₂,grid,y}	0.7063 tCO ₂ e/MWh for displacing grid electricity consumed by the user.	The baseline grid emission factor is determined ex-ante, based on the most recent information available, and is calculated as a combined margin, consisting of the weighted average of the OM and BM emission coefficients. This combined margin emission coefficient will remain fixed during the first crediting period. The ex-ante parameters applied in the calculation have been validated and discussed in the section 3.6.4 of this report, and the Validation Team confirms that the calculation of the OM, BM and CM is applicable and valid at the time of starting validation.
EF _{CO₂,y}	0.8 tCO ₂ /MWh for supplying electricity to mini-grid where all generators use exclusively fuel oil and/or diesel fuel;	Confirmed in line with the referenced AMS-I.F, Version 2.0

Scenario 4: Greenfield mini-grid connected or captive use small scale geothermal power project

<i>Parameter</i>	<i>Value</i>	<i>Means of Validation</i>
GWP _{CH₄}	For the first commitment period: 21 tCO ₂ e/tCH ₄	Confirmed in line with the applied ACM0002, Version 15.0
EF _{CO₂,grid,y}	0. 7044 tCO ₂ e/MWh for displacing grid electricity consumed by the user.	The baseline grid emission factor is determined ex-ante, based on the most recent information available, and is calculated as a combined margin, consisting of the weighted average of the OM and BM emission coefficients. This combined margin emission coefficient will remain fixed during the first crediting period. The ex-ante parameters applied in the calculation have been validated and discussed in the section 3.6.4 of this report, and the Validation Team confirms that the calculation of the OM, BM and CM is applicable and

		valid at the time of starting validation.
EF _{CO₂,y}	0.8 tCO ₂ /MWh for supplying electricity to mini-grid where all generators use exclusively fuel oil and/or diesel fuel;	Confirmed in line with the referenced AMS-I.F, Version 2.0

The Validation Team has verified the value used against the sources & conclude that all ex-ante parameters to calculate the GHG emissions reductions of the project have been sufficiently considered, real, measurable & conservative.

3.9.2 Parameters determined ex-post of 9 typical CPAs

The following parameters shall be monitored ex-post respectively for 9 typical CPAs:

Scenario 1&9: Greenfield grid-connected hydropower project for both large scale and small scale

<i>Parameter</i>	<i>Description</i>
EG _{facility,y}	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Cap _{PJ}	Installed capacity of the hydropower plant after the implementation of the project activity
A _{PJ}	Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full
TEG _y	Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y

Scenario 2&8: Greenfield grid-connected solar PV power project for both large scale and small scale

<i>Parameter</i>	<i>Description</i>
EG _{facility,y}	Quantity of net electricity supplied to the grid by the project plant/unit in year y (MWh)

Scenario 3&7: Greenfield grid-connected geothermal power project for both large scale and small scale

<i>Parameter</i>	<i>Value</i>
EG _{facility,y}	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
W _{steam,CO₂,y}	Average mass fraction of carbon dioxide in the produced steam in year y

$W_{\text{steam,CH}_4,y}$	Average mass fraction of methane in the produced steam in year y
$M_{\text{steam},y}$	Quantity of steam produced in year y
$FC_{i,j,y}$	Quantity of fuel type i combusted in process j during the year y
$W_{C,i,y}$	Weighted average mass fraction of carbon in fuel type i in year y
$\rho_{i,y}$	Weighted average density of fuel type i in year y
$NCV_{i,y}$	Weighted average net calorific value of fuel type i in year y
$EF_{\text{CO}_2,i,y}$	Weighted average CO ₂ emission factor of fuel type i in year y.

Scenario 6: Greenfield mini-grid connected or captive use small scale hydropower project

<i>Parameter</i>	<i>Description</i>
$EG_{\text{facility},y}$	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Cap_{PJ}	Installed capacity of the hydropower plant after the implementation of the project activity
A_{PJ}	Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full
TEG_y	Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y

Scenario 5: Greenfield mini-grid connected or captive use solar PV small scale power project

<i>Parameter</i>	<i>Description</i>
$EG_{\text{facility},y}$	Quantity of net electricity supplied to the grid by the project plant/unit in year y (MWh)

Scenario 4: Greenfield mini-grid connected or captive use geothermal small scale power project

<i>Parameter</i>	<i>Value</i>
$EG_{\text{facility},y}$	Quantity of net electricity generation supplied by the project plant/unit to

	the grid in year y
$W_{\text{steam},\text{CO}_2,y}$	Average mass fraction of carbon dioxide in the produced steam in year y
$W_{\text{steam},\text{CH}_4,y}$	Average mass fraction of methane in the produced steam in year y
$M_{\text{steam},y}$	Quantity of steam produced in year y
$FC_{i,j,y}$	Quantity of fuel type i combusted in process j during the year y
$W_{C,i,y}$	Weighted average mass fraction of carbon in fuel type i in year y
$\rho_{i,y}$	Weighted average density of fuel type i in year y
$NCV_{i,y}$	Weighted average net calorific value of fuel type i in year y
$EF_{\text{CO}_2,i,y}$	Weighted average CO2 emission factor of fuel type i in year y.

The monitoring of emission reductions generated by the CPAs will be carried out systematically according to the monitoring plan. All relevant parameters are monitored closely as required by methodology throughout the CPA's implementation.

All parameters required by the methodology including the method of the measurement have been included in the PoA-PDD. All monitoring data will be electronically archived for a period of two years after crediting period.

3.9.3 Management System and Quality Assurance

According to the PoA-DD (Version 06, 13 Nov. 2014)/2/, the project's monitoring plan outlines the followings:

- Purpose;
- Management structure of monitoring;
- Equipment and installation of monitoring;
- Data collection management;
- Quality assurance and quality control;

According to the document review and onsite interview/i/, the Validation Team considers that the monitoring plan described in the PoA-DD (Version 06, 13 Nov. 2014) is feasible with the project design.

Sufficient procedures have been identified in the PoA-DD (Version 06, 13 Nov. 2014) and the implementation of those procedures will enable that the emission reductions of the project can be reported ex-post. The staff training plan/32/ has been checked to be comprehensively documented that the monitoring staff will receive sufficient trainings to ensure the appropriate operation and maintenance. Thus, the Validation Team's opinion is that the project owner is able to implement the monitoring plan as described in the PoA-DD (Version 06, 13 Nov. 2014)/2/.

3.10 Sustainable Development

The Letter of Approval/3/ issued by the Rwanda in 2013, confirms that the PoA contributes to sustainable development in Rwanda.

3.11 Environmental Impacts

Environmental impacts will be assessed at a CPA level, which has been appropriately described in the PoA-DD (Version 06, 13 Nov. 2014)/2/.

3.12 Local Stakeholder Consultation

The local stakeholder consultation will be conducted at a CPA level, which has been appropriately described in the PoA-DD (Version 06, 13 Nov. 2014)/2/.

3.13 Comments by Parties, Stakeholders and NGOs

The PoA-DD of 'Version 01, 22 Jun. 2013' was made publicly available for global stakeholder consultation on UNFCCC website <http://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/IX1LNUH7LDP6QTIKMK> from 05 Sept. 2013 to 04 Oct. 2013 in order to invite comments from public stakeholders. The PoA-DD of 'Version 01, 22 Jun. 2013' was published prior to commencement of the validation and the Validation Team has taken a due note on the outcome of its result. No public comments have been received during that period.

Appendix A

The Validation Protocol for CDM Programme of Activities:
Renewable Energy CDM Programme of Rwanda (RECPR)

in

Rwanda

Based on CDM Validation and Verification Standard,

Report No. 01 997 9105076552

Table 1: CDM-POA Requirements Checklist

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Standard ver 05.0, Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities, version 03.0).

Checklist question	Ref.	MoV ⁶	Findings, comments, references, data sources	Draft conclusion	Final Conclusion
A. General Description of the Programme of Activities					
A.1 Title of the PoA					
A 1.1 Are title, version number and the date of completion of PoA-DD given in section A.1 of the PoA-DD?	/1///6/	DR	Yes, the title, version number and the date of completion have been clearly given in the PoA-DD correctly.	OK	OK
A.2. Description of the PoA					
A 2.1 Does PoA-DD in section A.2 contain a sufficient description of Framework for the implementation of the proposed PoA?	/1//6/	DR	Yes, it contains a sufficient description of framework for the implementation of the proposed PoA.	OK	OK
A 2.2 Does PoA-DD in section A.2 contains the description of the policy/measure or stated goal that the PoA seeks to promote in a transparent manner with sufficient reference of the policy/measure/stated goal if any?	/1//6/	DR	Yes, the section A.2 of the PoA-DD contains the description of the policy/measure in a transparent manner.	OK	OK
A 2.3 Has a confirmation been given that the proposed PoA is a voluntary action by the coordinating/managing entity?	/1//6/	DR	Yes, a confirmation has been given for the voluntary participation of the PoA by CME.	OK	OK
A.2.4 Will the PoA create other environmental	/1//6/	DR	Yes, it contains a brief	OK	OK

⁶ MoV = Means of Validation, DR = Document Review, I = Interview, www = internet search, OSV = On-site visit

or social benefits than GHG emission reductions?			description of contributing to sustainable development by the PoA, such as local employment opportunities during the construction and operation of the CPAs included in the PoA.		
A.2.5 Does the PoA qualify as a small-scale CDM project activity as defined in decision 4 / CMP.1 annex II?	/1//16/	DR	No, the PoA project includes large scale, small scale and microscale renewable power generation plants as described in the PoA-DD..	OK	OK
A.2.6 Has the latest version of the PoA-DD been applied?	/1//5/	DR	Yes, it uses the latest version of the PoA-DD.	OK	OK
A.2.7 Has the PoA-DD been duly filled in accordance with the latest guidances and procedures and all information are consistently described?	/1//5//6/	DR	Yes, the PoA-DD has been correctly filled in accordance with the latest guidances and procedures.	OK	OK
A.3. CME and Participants of PoA					
A.3.1. Has the coordinating/managing entity obtained letters of approval for the implementation of the PoA from each Host Party and Annex I Party involved in the PoA?	/1/	DR	The letter of approval for implementation of the PoA from Rwanda as host country listed in the PoA-DD is not provided	CAR-1	OK

A.3.2. Do the written approvals confirm that the corresponding party is a Party to the Kyoto Protocol?	/1/	DR	ditto	CAR-1	OK
A.3.3. Are the approvals issued from organizations listed as DNAs on the UNFCCC CDM website? Indicate the means of validation employed to assess the authenticity, i.e. in case of doubt whether LoA has been verified with the DNA. Further describe which entity submitted the LoA for validation.	/1/	DR	ditto	CAR-1	OK
A.3.4. Do the written approvals confirm that the participation is voluntary?	/1/	DR	ditto	CAR-1	OK
A.3.5. Does the written approval from the host country confirm that the project contributes to the sustainable development in the country?	/1/	DR	ditto	CAR-1	OK
A.3.6. Do the written approvals refer to the precise project title in the PoA-DD submitted for registration or an additional specification of the project activity, e.g. PoA-DD version number?	/1/	DR	ditto	CAR-1	OK
A.3.7. Are the written approvals unconditional with regard to A.3.2, A.3.4 to A.3.6?	/1/	DR	ditto	CAR-1	OK
A.3.8. Is the information regarding the project participants listed in section A3 and in Annex 1 of the PoA-DD internally consistent to each other?	/1/	DR	Yes, they are consistent to each other.		OK
A.3.9. Has the participation to the PoA of each project participant listed in the PoA-DD been	/1/	DR	See item A.3.1.	CAR-1	OK

approved by at least one Party involved? Indicate whether the participation of the project participant(s) has been approved by a Party to the Kyoto Protocol. Describe the means of validation employed to draw this conclusion.					
A.3.10. Are there any other project participants approved but not listed in the PoA DD?	/1/	DR	See item A.3.1.	CAR-1	OK
A.3.11 Is the title of the PoA as given in the PoA-DD identical with the title given in all LoAs and Modalities of Communication?	/1///6/	DR	The signed MoC was not provided to the Validation Team yet, which is to be checked and confirmed valid at the time of requesting for the registration of the PoA.	CAR-1 CAR-2	OK
A.4. Location, technical description and management system of the PoA					
A.4.1.1 Has the location of the PoA been correctly described?	/1//5/	DR	Yes, it has been correctly described that the PoA is located in Rwanda..	OK	OK
A.4.1.2.1. Have (all) host countries been correctly listed?	/1//5/	DR	Yes, only Rwanda as the host country is involved in the PoA and correctly listed in the PoA-DD.	OK	OK
A.4.1.2.2. Is there any Party directly involved as project participant, and if yes, is that Party's contact details included in annex 1 of the PoA-DD?	/1//5/	DR	There is not any Party directly involved as project participant which is clearly described in	OK	OK

			the PoA-DD.		
A.4.1.3.1 Does the PoA-DD include a definition of 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?	/1//5/	DR	Yes, the boundary of the PoA is within the administrative territory of Rwanda.	OK	OK
A.4.2.1. Does the PoA-DD contain a clear, accurate and complete description of the CPAs with regard to the technology / measures to be used?	/1//5/ /8/	DR	Since the emission reduction calculations for capacity addition differ compared to green-field, it is requested to have 2 generic CPAs for large scale and small scale hydropower plant option although technology and methodology use is same in accordance with the Para. 143 and footnote 15 of Project Standard version 05.0.	CAR-3	OK
A.4.2.2. Does the project 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//5/	DR	No, the project applies commonly use technologies.	OK	OK
A.4.3.1. Is there a clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies?	/1//5/ /31/	DR	Yes, the roles and responsibilities of personnel involved in the process of inclusion of CPAs are clearly defined in the manual of	OK	OK

			the PoA operational and management system.		
A.4.3.2. Has CME developed a system for records of arrangements for training and capacity development for personnel?	/1//5/ /31/	DR	Yes, it is included in the manual.	OK	OK
A.4.3.3. Is there a procedure for technical review of inclusion of CPAs?	/1//5/ /31/	DR	Yes, it is included in the manual.	OK	OK
A.4.3.4. Is there a procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA)?	/1//5/ /31/	DR	Yes, it is included in the manual.	OK	OK
A.4.3.5. Is there a system for records and documentation control process for each CPA under the PoA?	/1//5/ /31/	DR	Yes, it is included in the manual.	OK	OK
A.4.3.6. Is there a system for the measures for continuous improvements of the PoA management system?	/1//5/ /31/	DR	Yes, it is included in the manual.	OK	OK
A.4.3.7. Are there any other elements for management system?	/1//5/ /31/	DR	No, there is not any other element.	OK	OK
A.4.4.1. Is there a confirmation that official development assistance has not been diverted to the implementation of the PoA in case public funding is used?	/1//5/	DR OSV	Not applicable.	OK	OK
B. Duration of the PoA					
B.1.1. What is the starting date of the PoA? Is it Reasonable?	/1//5/ /8/	DR OSV	The start date of the PoA is defined by the PP referring to the prior consideration of CDM as 6 th May 2013. However it is required	CAR-4	OK

			to provide the evidence to confirm it.		
B.2.1. What is the length/lifetime of the PoA? Is it reasonable?	/1//5/ /8/	DR OSV	Yes, its length is 28 years, which is reasonable.	OK	OK
C. Environmental Analysis					
C.1.1. Has it been clearly indicated on which level i.e. PoA or CPA an environmental Analysis has been carried out or will be carried out?	/1/	DR	Yes, it has been clearly indicated that the environmental analysis will be carried out at CPA level.	OK	OK
C.2.1. Has an environmental analysis of the PoA as per requirements of the CDM modalities and procedures been undertaken and described in the CDM-POA-DD?	/1/	DR	Not applicable as the EIA analysis will be undertaken and described in the CPA-DD instead.	OK	OK
C.3.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)?	/1//33/	DR	Yes, as per Rwanda's environmental protection law, all construction projects will be conducted an environmental impact assessment.	OK	OK
C.3.2. In case an Environmental Impact Assessment (EIA) is requested by the host party, has it been carried out and if applicable duly approved?	/1/	DR	As confirmed in the PoA-DD, It will be carried out at the CPA level.	OK	OK
C.3.3. Are trans boundary environmental impacts considered in the analysis?	/1/	DR	Not applicable	OK	OK
D. Stakeholders' comments					
D.1.1. Has it been clearly indicated on which	/1/	DR	Yes, it has been clearly	OK	OK

level i.e. PoA or CPA stakeholder comments have been or will be invited?			indicated that the stakeholder consultation will be carried out at CPA level.		
D.2.1. With regard to the PoA, how have local stakeholders' comments been invited prior to the publication of the DDs and summarized? If applicable, was due account taken of the comments received?	/1/	DR	Not applicable	OK	OK
D.3.1. With regard to the PoA, can the summary provided assessed as adequate?	/1/	DR	Not applicable	OK	OK
D.4.1. With regard to the PoA, can the report provided assessed as adequate?	/1/	DR	Not applicable	OK	OK
D.4.2. With regard to the PoA, can the local stakeholder consultation process in general be assessed as adequate?	/1/	DR	Not applicable	OK	OK
E.1. Title and reference of the methodology					
E.1.1. Does the PoA apply an approved and applicable CDM methodology and a valid version thereof?	/1//17//18//19/	DR	Yes, the PoA applies the approved and valid methodology ACM0002 version 15.0, AMS-I.D version 17.0 and AMS-I.F version 2.0.	OK	OK
E.2. Justification of the choice of the methodology					
E.2.1. Is the justification of the choice of an approved baseline and monitoring methodology for the typical CPA sufficient?	/1//17//18//19//13//14//21/	DR	Yes, it is.	OK	OK
E.2.2. Does a typical CPA apply a combination of approved methodologies? If so, has such combination been approved only once in	/1/	DR	In the proposed PoA-DD, the ACM0002 is used for the large scale	CL1	OK

accordance with “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”?			<p>project including hydropower, solar photovoltaic power and geothermal power CPA project, the AMS-I.D and AMS-I.F is used respectively for the small scale project connected to the grid and mini-grid connected or captive use small scale project including hydropower, solar photovoltaic power and geothermal power CPA project.</p> <p>Clarification is required according to standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities, whether the request for clarification on cross effects in the proposed combinations is submitted with justification to demonstration of</p>		
---	--	--	--	--	--

			integration of the implementation of the activities through the design of the programme as indicated in paragraph 31(d).		
E.2.3. Does the typical CPA apply one of the approved small scale categories and any methodology and tool referred therein?	/1//18//19//20/	DR	Yes, for the typical CPA with installed capacity less than small scale project threshold or microscale threshold covering hydropower plant, solar power plant and geothermal power plant, they applies approved methodology AMS-I.D version 17.0 or AMS-I.F version 2.0 and Tool to calculate the emission factor for an electricity system, Version 03.0.0.	OK	OK
E.2.4. Are all applicability criteria in the methodology, the applied tools or any other methodology component referred to therein fulfilled?	/1/	DR	Yes, all applicability criteria fulfill the requirements of the applied methodology and tools. The CME has justified the choice of the applied methodology in the PoA-DD.	OK	OK
E.3. Description of the sources and gases included in the boundary					

E.3.1. Are the CPA's spatial boundaries (geographical) of the CPAs to be included are clearly defined?	/1/	DR	Yes, it has been clearly defined in the CPA-DD	OK	OK
E.3.2. Are all sources and GHGs included in the project boundary as required in the applied methodology?	/1/	DR	Yes, all sources and GHGs have been included in the project boundary.	OK	OK
E.3.3. In case the methodology allows to choose whether a source and/or gas are to be included, is the choice sufficiently explained and justified?	/1/	DR	Yes	OK	OK
E.4. Description of how the baseline scenario is identified and description of baseline scenario					
E.4.1. Does the PoA-DD make provisions to identify possible baseline scenarios to be considered for CPAs?	/1/	DR	Clarification is required why the baseline for other system described in the AMS-I.F paragraph 14 is not presented in the PoA-DD.	CL-2	OK
E.4.2. Does the PoA-DD make provisions to identify the list of all the alternatives? Is the list of alternatives complete?	/1/	DR	ditto	CL-2	OK
E.4.3. Does the PoA-DD make provisions to identify the baseline scenario according to the methodology for each CPA?	/1/	DR	ditto	CL-2	OK
E.4.4. Does the PoA-DD make provisions that any plausible alternative scenario is not excluded?	/1/	DR	ditto	CL-2	OK
E.4.5. Does the baseline alternatives sufficiently take into account relevant national and/or sectoral policies?	/1/	DR	ditto	CL-2	OK
E.4.6. Are the provisions for the baseline scenario determination compatible with the available data	/1/	DR	ditto	CL-2	OK

and are all literature and sources clearly referenced?					
E.5. Additionality and eligibility criteria for inclusion of a CPA					
E.5.1.1. Does the PoA-DD makes provisions to describe the additionality justification, which follows the requirements of the applied methodology and/or other methodological tools?	/1/	DR	Yes, it does.	OK	OK
E.5.2.1. Which criteria have been established to assess the additionality of CPA under this PoA?	/1//13//14//21/	DR	<p>The following criteria have been established to assess the additionality of CPA under this PoA:</p> <p>1, Tool for the demonstration and assessment of additionality for large scale project</p> <p>2, Guidelines on the demonstration of additionality of small scale project activities Version 09.0 for small scale project</p> <p>3, Guidelines for demonstrating additionality of microscale project activities, Version 05 for micro scale project.</p>	OK	OK
E.5.2.2. Does the PoA-DD provide criteria to assess that the CPAs of the PoA would not be the most economically or financially attractive alternative or economically / financially feasible	/1//13//14//21/	DR	Ditto	OK	OK

without the revenues from the sale of CERs?					
E.5.2.3. Is the type of investment analysis selected correctly?	/1//13//14//21/	DR	Yes, it is selected according to the tool or guideline referred to in the methodology applied.	OK	OK
E.5.2.4. Is the selected financial indicator chosen and applied correctly, if applicable?	/1//15/	DR	Further clarification is required in the PoA-DD why none of implemented CPAs would be occurred in the absence of the PoA because additionality demonstration of any typical CPA listed in the PoA-DD is not clearly presented excluding small scale solar power plant project according to standard of "Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities".	CL3	OK
E.5.2.5. If applicable, were the input values used in the investment analysis valid and applicable at the time of the investment decision and justified?	/1/	DR	Not applicable for generic CPA-DD.	OK	OK
E.5.2.6. In CME proposes to use values from	/1/	DR	Not applicable for	OK	OK

Feasibility Study Reports (FSR) is it possible to verify that the period between the FSR date and investment decision was reasonably short and FSR values did not change materially?			generic CPA-DD.		
E.5.2.7. Is it reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, assessing previous investment decisions by the project participants or some verifiable circumstances that have led to a change in the benchmark?	/1/	DR	Yes, it is reasonable to assume that the no investment would be made at a rate of return lower than the benchmark.	OK	OK
E.5.2.8. Is the Investment Analysis prepared in compliance with the latest version of the "Guidance on the Assessment of Investment Analysis" as provided by the CDM EB?	/1/	DR	It will be confirmed based on clarification of section E5.2.4	CL-3	OK
E.5.2.9. If applicable, Are there any issues addressed in the barrier analysis that have a clear impact on the financial viability of the project activity and that shall be assessed by an investment analysis?	/1/	DR	It will be confirmed based on clarification of section E5.2.4	CL-3	OK
E.5.2.10. If applicable, Do the listed barriers exist and is their existence substantiated? Note: (a) by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics and/or (b) by interviews with relevant individuals: including members of industry associations, government officials or local experts if necessary?	/1/	DR	It will be confirmed based on clarification of section E5.2.4	CL-3	OK
E.5.2.11 Would any of the identified barriers prevent the implementation of the project activity but not equally prevent the implementation of the	/1/	DR	It will be confirmed based on clarification of section E5.2.4	CL-3	OK

possible alternatives, in particular the implementation of the identified baseline scenario?					
E.5.2.12. Are the geographical boundaries for the common practice analysis identified correctly?	/1/	DR	It will be confirmed based on clarification of section E5.2.4	CL-3	OK
E.5.2.13. Does the PoA DD provides an explanation why this region was selected and deemed more appropriate and is this explanation traceable and reliable?	/1/	DR	It will be confirmed based on clarification of section E5.2.4	CL-3	OK
E.5.2.14 Are there similar operational project activities, other than CDM activities, “widely observed and commonly carried out” in the defined region? Note: Use official sources and local and industry expertise?	/1/	DR	It will be confirmed based on clarification of section E5.2.4	CL-3	OK
E.5.2.15. In case there are similar commercially operated project activities, other than CDM activities, already “widely observed and commonly carried out” in the defined region, are there essential distinctions between the CDM project activity and the other similar activities?	/1/	DR	It will be confirmed based on clarification of section E5.2.4	CL-3	OK
E.5.2.16. Has the PoA demonstrated that the proposed PoA is additional in accordance with the “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”?	/1/	DR	It will be confirmed based on clarification of section E5.2.4	CL-3	OK
E.5.3.1. Has the definition of eligibility criteria for inclusion of a CPA under the PoA included the following information: All type and/or extent of information (e.g. criteria, indicators, variables, parameters or measurements)	/1/	DR	It will be confirmed based on clarification of section E5.2.4	CL-3	OK

that shall be provided by each CPA in order to ensure its eligibility?					
E.5.3.2. Is eligibility criteria for inclusion of a CPA in line with the “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”?	/1//6/	DR	The eligibility criteria in terms of “The start date of the proposed CPA is on or after the start date of the PoA.” was not clearly defined in the format of dd/mm/yyyy in the section B.2 of the PoA-DD and B5 of each case of Part II according to “Guidelines for completing the programme design document form for CDM programmes of activities”. Specifically, the start date of any CPA is to be ensured to be on or after the start date of the PoA and the start date of the PoA shall be clearly defined.	CAR-5	OK
E.6. Estimation of Emission Reductions of CPA					
E.6.1.1. In case the methodology allows for different methodological choices, are the equations applied properly justified and have they been used reflecting the other methodological choices (i.e. baseline identification)?	/1//17//18//19/	DR	Yes, the applied equations are properly justified.	OK	OK
E.6.2.1. Are the equations applied correctly	/1//17//18//19/	DR	Yes, all the equations	OK	OK

according to the applied approved methodology?			are applied correctly in line with the applied methodology.		
E.6.2.2. Have conservative assumptions been used when calculating the project emissions?	/1//17//18//19/	DR	The project emission for the hydro and geothermal power plant is defined according to the applied methodology. Not applicable for the solar power plant.	OK	OK
E.6.3.1. Are provisions made to identify all data and parameters which remain fixed throughout the crediting period correct, applicable to the project and will lead to a conservative estimation of emission reductions?	/1//17//18//19/	DR	The fixed OM emission factor and BM emission factor for hydro, solar and geothermal power plant project is selected in the PoA-DD as 0.7082 and 0.7007 based on Rwanda 2009 National grid emission factor data report for the first crediting period. to calculate the emission factor is using a 3-year generation-weighted average based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation for grid power plants and	CL4	OK

			<p>using a single calendar year within the five most recent calendar years prior to the time of submission of the CDM-PDD for validation for mini-grid connected or captive use power plants according to tool for calculating an emission factor for electricity system. The PoA for GSP is started to be published on 5th September 2013.</p> <p>So clarification is required as following: 1, 2009 national grid emission factor used in the PoA-DD should be substantiated as most recent available data; 2, how and where should the values of 2009 national grid emission factor described in the PoA-DD be obtained;</p>		
E.6.3.2. Does the PoA-DD mention reasonable values for all ex-ante calculation / monitoring parameters?	/1//17//18//19/	DR	Ditto	CL4	OK
E.7. Application of the monitoring methodology and description of the monitoring plan					

E.7.1.1. Has the PoA DD contains monitoring parameters for the CPAs? Are the means of monitoring of all parameters contained in the monitoring plan feasible and in accordance with the requirements of the applied methodology?	/1//17//18//19/	DR	Yes, it does.	OK	OK
E.7.1.2. Has the PoA DD provides all monitoring parameters as required by the applied methodology required to be implemented by CPA monitoring plan?	/1//17//18//19/	DR	Yes, it does.	OK	OK
E.7.2.1 Has PoA DD contains monitoring plan for a CPA in accordance with the approved monitoring methodology, and identified the monitoring provisions and data parameters a CPA has to apply/monitor?	/1//17//18//19/	DR	Yes, it does.	OK	OK
E.7.2.2. Are the QA/QC procedures described under monitoring appropriate sufficient to ensure the emission reductions achieved from the project activity can be reported ex-post and verified?	/1//17//18//19/	DR	Yes, it does.	OK	OK
E.7.2.3. Have all means of implementing the monitoring plan, e.g. equations necessary for ex-post emission reduction calculation, been described clearly and in line with the methodology?	/1//17//18//19/	DR	Yes, it does.	OK	OK
E.7.2.4. If the coordinating/managing entity utilizes sampling for the determination of parameter values for calculating GHG emission reductions, the coordinating/managing entity shall develop and describe the sampling plan in accordance with the “Standard for sampling and surveys for CDM project activities and programme of activities”	/1//17//18//19//24/	DR	The description of non-condensable gases sampling for determining average mass fraction of carbon dioxide in the produced steam in year y and average mass fraction of methane in the produced steam in	OK	OK

			year y is in line with methodology.		
--	--	--	-------------------------------------	--	--

Table 2: List of Requests for Corrective Action (CAR) and Clarification (CL)

Validation / Verification Standard

(25) The DOE shall raise a corrective action request (CAR) if one of the following occurs:

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;

(b) The CDM requirements have not been met;

(c) There is a risk that emission reductions cannot be monitored or calculated.

(26) The DOE shall raise a clarification request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

The wording of CAR/CL shall clearly address nonconformity or seek clarification, and avoid instructive / consultative language in order to prevent actual or perceived consultancy.

Observation (CAR/CL)	Ref. to checklist question in table 1	Summary of project owner response	Validation Team's conclusion
CAR 1 The letter of approval for implementation of the PoA from Rwanda as host country listed in the PoA-DD is not provided	A.3.1 A.3.2 A.3.3 A.3.4 A.3.5 A.3.6 A.3.7 A.3.9 A.3.10 A.3.11	Letter of approval is provided	It is found by review of the LoA provided by the project participant that the letter of approval is in line with VVS requirement. This CAR is closed.
CAR 2 The signed MoC was not provided to the Validation Team yet, which is to be checked and confirmed valid at the time of requesting for the registration of the PoA.	A.3.11	MoC is provided	It is found by review of the MoC provided by the project participant that the MoC is in line with VVS requirement and relevant procedure.

			This CAR is closed.
CAR 3 Since the emission reduction calculations for capacity addition differ compared to green-field, it is requested to have 2 generic CPAs for large scale and small scale hydropower plant option although technology and methodology use is same in accordance with the Para. 143 and footnote 15 of Project Standard version 05.0.	A.4.2.1	The capacity addition plant option have been cancelled in the revised PoA-DD.	The update PoA-DD has been reviewed and found that the capacity addition plant option for hydropower project type including large scale and small scale generic CPA has been cancelled in the update PoA-DD. This CAR is closed.
CAR 4 The start date of the PoA is defined by the PP referring to the prior consideration of CDM as 6th May 2013. However it is required to provide the evidence to confirm it.	B.1.1	The information of prior consideration of CDM can be checked on the website http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html . and according to the website, the date is April 29th 2013; according to the letter to the DNA, the date is May 6th 2013, in a conservative way, the start date of the PoA is defined as May 6th 2013.	It is confirmed by reviewing the prior consideration of CDM to DNA/34/ and the UNFCCC secretary by the CME that the prior consideration of CDM date as the start date of the PoA as described in the PoA-DD is 6 May 2013 which is in line with para.159 of PS/8/. This CAR is closed.
CAR 5 The eligibility criteria in terms of "The start date of the proposed CPA is on or after the start date of the PoA." was not clearly defined in the format of dd/mm/yyyy in the section B.2 of the PoA-DD and B5 of each case of Part II according to "Guidelines for completing the programme design document form for CDM programmes of	E.5.3.2	The format of the date has been defined in the revised PoA_DD.	The start date of the PoA for each CPA is clearly defined in the update PoA-DD and start date of each CPA is updated in the format of dd/mm/yyyy in the section B2 of the PoA-DD and B5 of each case of Part II according to "Guidelines for completing the programme design document form for CDM programmes of activities"..

activities". Specifically, the start date of any CPA is to be ensured to be on or after the start date of the PoA and the start date of the PoA shall be clearly defined			This CAR is closed.
<p>CAR6</p> <p>The CDM requirements referred to in the PoA-DD excluding applied methodologies should be updated to be latest version.</p> <p>And applied methodologies may be updated if applicable.</p>		<p>The CDM requirements referred to in the PoA_DD have been updated to be the latest version.</p>	<p>Update PoA has been reviewed and found that all tools and guidelines referred to in the PoA-DD are updated to the latest version.</p> <p>This CAR is closed.</p>
<p>CAR 7</p> <p>In the PoA-DD, there is neither definition of the input parameters that will be used in the investment analysis, nor a description of how the values for these parameters will be obtained for each CPA, which is not in line with at item a) in paragraph 13 of "Standard on demonstration of additionality, development of eligibility criteria and application of multiple methodologies for PoAs", Version 03.0.</p>	Incomplete ness check	<p>The „Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities" option (a) (i) paragraph 13 requests:</p> <p>“the coordinating/managing entity shall define the input parameters that will be used in the investment analysis in the PoA-DD, together with a description of how the values for these parameters will be obtained for each CPA. The additionality of each CPA shall then be assessed by using the actual values, applicable to the CPA at the time of inclusion ...”</p> <p>In the financial analysis commonly used paramters (IRR, Costs of capital, Prime lending rate or,</p>	<p>The investment analysis will be used for large scale CPAs. The definition of the input parameters that will be used in the investment analysis and the description of how the values for these parameters will be obtained for each CPA are stated as per the paragraph 13 of "Standard on demonstration of additionality, development of eligibility criteria and application of multiple methodologies for PoAs", Version 03.0.,</p> <p>The CAR is closed.</p>

		<p>WACC) were defined in the PoADD. The listed parameters were obviously not sufficient in the opinion of EB. Up to 50 different impute parameters are commonly used to calculate few parameters (IRR, Costs of Capital, Prime Lending Rate or, WACC) necessary for investment analysis (commonly used benchmark analysis). The final decision which input parameters/values will be used, is only possible on real case component and vary strong from CPA to CPA. On the end all the impute parameters are used to calculate the In the financial analysis used parameters (IRR, Costs of Capital, Prime Lending Rate or, WACC) listed in the PoADD.</p> <p>The Section B.2 of PoA-DD under large scale clearly states how the originally defined parameters will be obtained for each CPA: "Feasibility study report, or general project information material such as internal memos or exchanges with a financing institution, or other relevant project documents" as the source of information for CPA additionality.</p>	
--	--	---	--

		<p>In the opinion of CME the „Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities” option (a) (i) paragraph 13 doesn’t specify which and how many “additional” input parameters in the “generic” PoADD as required.</p> <p>Following the incomplete case CME revived registered large scale PoA and taking in to account the “Guideline on the assessment of investment analysis” Verssion 5 defined “additonal” paramters together with the source of the parameters.</p>	
<p>CAR 8</p> <p>The measures proposed to avoid double counting of emission reductions are not sufficient (For instance if a CPA is either an inclusion of a project activity under validation process (but not yet registered) or a project activity submitted to other programs different than CDM for the same claimed emission reductions), which is not in line with item b) in paragraph 16 of "Standard on demonstration of additionality, development of eligibility</p>	Incomplete ness check	<p>Requirements:</p> <p>“Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”</p> <p>para 16 (b); Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme</p>	<p>The measures proposed to avoid double counting of emission reductions are sufficient as per "Standard on demonstration of additionality, development of eligibility criteria and application of multiple methodologies for PoAs", Version 03.0.,</p> <p>The CAR is closed.</p>

criteria and application of multiple methodologies for PoAs",Version 03.0.	<p>logo)</p> <p>para 19 (d); Procedure to avoid double counting(e.g. to avoid the case of including a new CPA that has already been registered einther as a CDM project activity or as a CPA of another PoA)</p> <p>VVS V7, amendment;</p> <p>para 234: DOE shall assess the CDM-PoA_DD and the <u>specific CPA</u>.</p> <p>(d) That the specific CPA is neither registered as a CDM project activity nor included in another registered PoA.</p> <p>PoA DD as well as CPA DD define the eligibility as follow:</p> <p>Eligibility Criteria:</p> <table><tr><td>1. Conditions for avoiding double counting: The CPA has not yet been included in another PoA, is</td><td>1. Signed confirmation from the entity implementing the CPA. 2. The CME will also crosscheck</td></tr></table>	1. Conditions for avoiding double counting: The CPA has not yet been included in another PoA, is	1. Signed confirmation from the entity implementing the CPA. 2. The CME will also crosscheck	
1. Conditions for avoiding double counting: The CPA has not yet been included in another PoA, is	1. Signed confirmation from the entity implementing the CPA. 2. The CME will also crosscheck			

		<table><tr><td>not under validation or has not yet been registered as a single CDM project activity. The procedure to avoid double counting is further explained in Section C of this document.</td><td>with DNA before inclusion. 3. The CPA will have unique identification and serial number. 4. The CME will also check carbon markets CERs/VERs registries.</td></tr></table>	not under validation or has not yet been registered as a single CDM project activity. The procedure to avoid double counting is further explained in Section C of this document.	with DNA before inclusion. 3. The CPA will have unique identification and serial number. 4. The CME will also check carbon markets CERs/VERs registries.	
not under validation or has not yet been registered as a single CDM project activity. The procedure to avoid double counting is further explained in Section C of this document.	with DNA before inclusion. 3. The CPA will have unique identification and serial number. 4. The CME will also check carbon markets CERs/VERs registries.				
		<p>PoA-DD; Under management system: Procedure to avoid double accounting:</p> <p>CME will ensure that each CPA proposed for inclusion in the PoA does not result in double counting of emission reductions. The following steps should be used:</p> <ol style="list-style-type: none">1. Check the CPA plant details against the record keeping system of PoA;2. Check the CPA plant details against the project activities already under validation or registered as a CDM project			

		<p>activity or part of another PoA;</p> <p>3. Confirm that project activity is not an individual CDM project or part of any other PoA;</p> <p>4. DG Works Ltd shall also ensure that the CPA entity has entered into a contract with it. The same also forms a part of eligibility conditions for inclusion under the PoA. It shall also confirm that CPA or any part of CPA has not been and will not be registered as a single CDM project activity or as a CPA under another PoA and the implementing entity is aware that the CPA will be subscribed to the present PoA.</p> <p>The issues raised during in complete:</p> <p>a) "...if a CPA is either an inclusion of a project activity under validation process (but not yet registered), or"</p> <p>b) "a project activity submitted to other programs different than CDM</p>	
--	--	---	--

		<p>for the same claimed emission reductions),...”</p> <p>are covered in the PoA-DD and CPA-DD. In the first case (a) the project under validation is not registered and therefore can be eligible for inclusion in the PoA-DD. A written confirmation from PP on non-inclusion will be requested anyway.</p> <p>The second issue (b) is ensured via confirmation from DNA, PP, and check of carbon markets CERs/VERs registries.</p> <p>In opinion of CME this is in line with “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities” as well as VVS version 7.</p> <p>No further changes to the PoA-DD and CPA-DD were made.</p>	
<p>CAR 9</p> <p>There are no specifications in respect to the technology/measure, such as type, capacity and other key features of the systems design, which is not in line with</p>		<p>Requirements:</p> <p>“Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for</p>	<p>The specifications in respect to the technology/measure is in line with "Standard on demonstration of additionality, development of eligibility criteria and application of multiple methodologies for PoAs",Version 03.0.</p>

<p>item c) in paragraph 16 of "Standard on demonstration of additionality, development of eligibility criteria and application of multiple methodologies for PoAs", Version 03.0.</p>	<p>programme of activities"</p> <p>para 16 (c); "The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications;"</p> <p>PoA DD Section A6</p> <p>The proposed CPA comprises of only one type of renewable energy technology:</p> <ol style="list-style-type: none"> 1. Hydro or 2. Solar PV or 3. Geothermal as per section A6 <p>The capacity of:</p> <ol style="list-style-type: none"> 1. Small scale projects will be equal to or lower than 15 MW, and 2. Capacity of large scale projects will be above 15 MW. <p>(Level of Service)</p> <p>All the technologies described above could either be grid-connected, connected to mini grid where in the baseline all generators use exclusively fuel oil</p>	<p>The CAR is closed.</p>
---	---	---------------------------

		<p>and/or diesel fuel, or individual users. The CPAs under the PoA will only involve the installation of a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the CPAs (Greenfield plant).</p> <p>(Compliance with regulations)</p> <p>All project activities will meet the criteria of the applied methodology(ies).</p>	
<p>CL 1</p> <p>In the proposed PoA-DD, the ACM0002 is used for the large scale project including hydropower, solar photovoltaic power and geothermal power CPA project, the AMS-I.D and AMS-I.F is used respectively for the small scale project connected to the grid and mini-grid connected or captive use small scale project including hydropower, solar photovoltaic power and geothermal power CPA project.</p> <p>Clarification is required according to standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities, whether the request for clarification on cross effects in</p>	E2.2	<p>The combination of ACM0002, AMS.I.D and AMS.I.F has been approved by Meth Panel. Please check the response to AM_CLA_0241 by Meth Panel.</p> <p>http://cdm.unfccc.int/methodologies/PAMethodologies/clarifications/93590</p>	<p>The validation team reviewed the final response to the request for clarification “The eligibility of the combination of ACM0002, AMS-I.D, AMS-I.A, AMS-I.F and AMS-I.L in a renewable energy PoA (AM_CLA_0241)” /25/and found that the Methodologies Panel clarifies that the described combination i.e. ACM0002, AMS-I.D and AMS-I.F is eligible for a PoA since the implementation of the activities is designed to contribute to the development and implementation of renewable energy projects in Rwanda.</p> <p>This CL is closed.</p>

the proposed combinations is submitted with justification to demonstration of integration of the implementation of the activities through the design of the programme as indicated in paragraph 31(d).			
CL 2 Clarification is required why the baseline for other system described in the AMS-I.F paragraph 14 is not presented in the PoA-DD.	E.4.1 E.4.2 E.4.3 E.4.4 E.4.5 E.4.6	The baseline for other system in the AMS.I.F paragraph 14 has been added in the PoA_DD.	The update PoA-DD has been reviewed and found that the baseline for other system stated in the AMS-I.F paragraph 14 has added in the update PoA-DD for each generic small scale CPA described in the PoA-DD. This CL is closed.
CL 3 Further clarification is required in the PoA-DD why none of implemented CPAs would be occurred in the absence of the PoA because additionality demonstration of any typical CPA listed in the PoA-DD is not clearly presented excluding small scale solar power plant project according to standard of "Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities".	E.5.2.4 E.5.2.8 E.5.2.9 E.5.2.10 E.5.2.11 E.5.2.12 E.5.2.13 E.5.2.14 E.5.2.15 E.5.2.16 E.5.3.1	Additionality will be proven on the CPA level for each CPA separately. For large scale CPA cases, additionality will be proven based on "Tool for the demonstration and assessment of additionality (version 07)"; For small scale CPA cases, additionality will be proven based on "Guidelines on the demonstration of additionality of small scale project activities" (version 09); For micro scale CPA cases, additionality will be proven based on "Guidelines for demonstrating additionality of	It is reviewed and considered reasonable in the revised PoA-DD. This CL is closed.

		<p>microscale project activities (Version 05)”;</p> <p>In the absence of CDM, none of the CPAs under the PoA would have occurred due to the additionality. The PoA_DD has been revised.</p>	
<p>CL 4</p> <p>The fixed OM emission factor and BM emission factor for hydro, solar and geothermal power plant project is selected in the PoA-DD as 0.7082 and 0.7007 based on Rwanda 2009 National grid emission factor data report for the first crediting period.</p> <p>to calculate the emission factor is using a 3-year generation-weighted average based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation for grid power plants and using a single calendar year within the five most recent calendar years prior to the time of submission of the CDM-PDD for validation for mini-grid connected or captive use power plants according to tool for calculating an emission factor for electricity system.</p> <p>The PoA for GSP is started to be published on 5th September 2013.</p> <p>So clarification is required as following:</p>	<p>E.6.3.1</p> <p>E.6.3.2</p>	<p>The emission factor is sourced from the website of Rwanda DNA: http://www.rema.gov.rw/dna/index.php?option=com_docman&task=doc_details&gid=24&Itemid=</p> <p>2009 national grid emission factor used in the PoA-DD is the most recent available data published by the DNA.</p>	<p>It is confirmed by reviewing the Rwanda DNA (REMA) official website/26/ that the 2009 national grid emission factor used in the PoA-DD is the most recent available data published by the DNA.</p> <p>This CL is closed.</p>

1, 2009 national grid emission factor used in the PoA-DD should be substantiated as most recent available data; 2, how and where should the values of 2009 national grid emission factor described in the PoA-DD be obtained;			
--	--	--	--

Table 3: List of forward action requests (FARs)

Validation / Verification Standard

(27) The DOE shall raise a forward action request (FAR) during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

FAR number	Reference	Summary of project owner response	Validation Team conclusion
Not applicable			

Appendix B

Certificates of Competence

Qualification

Ma, Jiandong /

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 04 - Manufacturing industries

Add. qualification:
(zus. Qualifikation)

First Appointment:
(Erstberufung)

07/06/2009

Valid to:
(Gültig bis)

05/05/2015

Remarks:

CDM 01: valid for TA 1.1, 1.2
CDM 04: valid for TA 4.5 - Other WHR and Fuel Switch

Languages:

Experience Exchange

Date

Location

Remarks

2010-12-21 Beijing GC CDM Auditor Experience Exchange, Beijing, 2010-12-21 to 23
United Nations Framework Convention on Climate Change

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next
Monitoring:
(nächste
Beurteilung)

Remarks:

[View / Edit Monitoring](#)

History of scope allocation

Date: 2009-07-07
Change: EAC CDM added
By: Manfred Brinkmann
Reason: Role as team leader for DNV confirmed for:
- China tumuxi small hydropower project
- Fujian jinjiang LNG power generation project
Other validation reports are either not (yet) available or show different role (GHG auditor: Henan sanmenxia, Lufeng; Trainee: Heilongjiang Hengdaishan).
Explanation for inconsistent information requested 2009-07-07.
M. Brinkmann

History

Created:	06/15/2009 02:39:04 PM	Jiandong Ma/Shg/Chn/TUV
Modified:	06/10/2012 01:23:22 PM	Jiandong Ma/Shg/Chn/TUV
	05/11/2012 02:37:01 PM	Praveen Urs/Chn/TUV
	02/28/2011 09:43:09 PM	Jiandong Ma/Shg/Chn/TUV
	02/28/2011 09:42:13 PM	
	01/13/2011 03:31:21 PM	ZE9
	01/13/2011 03:31:13 PM	ZE9
	01/13/2011 03:31:00 PM	ZE9
	01/13/2011 03:29:02 PM	ZE9
	01/10/2011 08:21:19 PM	
	10/23/2009 10:23:33 PM	ZE9

Export to ICMS

Last Export:

Qualification

Wu, Ze (Justin) /

Emission Trading

United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)Appointed:
(Zugelassen)☒ jaQualification Level: Expert
(Qualifikationsstufe)External:
(Externer)☒ jaAdd. reviewer: ☐ yes
(Zusätzlicher Prüfer)EAC Scopes:
(EAC Branchen)CDM 04 - Manufacturing industries
CDM 09 - Metal production
CDM 13 - Waste handling and disposal
CDM 01 - Energy industries (renewable - / non-renewable
sources)Add. qualification:
(zus. Qualifikation)First Appointment:
(Erstberufung)

07/19/2012

Valid to:
(Gültig bis)

07/18/2015

Remarks:

TA 4.3/4.5
TA 1.2, TA 9.1, TA 13.1

Languages:

Chinese
English

Experience Exchange

Date

Location

Remarks

Monitoring

Latest Monitoring:
(letzte Beurteilung)Next
Monitoring:
(nächste
Beurteilung)

Remarks:

History of scope allocation

Date: 2012-07-19
Change: EAC CDM added
By: Praveen Urs
Reason:

Date: 2012-07-19
Change: EAC CDM, CDM, CDM added
By: Praveen Urs
Reason:

History

Created:	07/19/2012 11:46:55 AM	Base Wu/Shg/Chn/TUV
Modified:	07/19/2012 03:36:12 PM	Praveen Urs/Chn/TUV
	07/19/2012 03:35:21 PM	Praveen Urs/Chn/TUV
	07/19/2012 11:47:05 AM	Base Wu/Shg/Chn/TUV

Export to ICMS

Last Export:

Qualification

Eddie Mugarura Balaba

Emission Trading**United Nations Framework Convention on Climate change**

Appointed:	<input checked="" type="checkbox"/>		
		Qualification level:	Local Expert
External:	<input checked="" type="checkbox"/>		
<div style="display: flex;"> <div style="width: 20%; background-color: #f5f5dc; padding: 5px;">Scopes:</div> <div style="flex-grow: 1;"></div> </div>			

Scope:			
Languages:	English Kinyarwanda		
Legal requirements	<input checked="" type="checkbox"/>		

Validity:

First Appointment	11 September 2013	Valid To:	10 September 2016
-------------------	-------------------	-----------	-------------------

Approved By:

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

History of Scope Allocation:

Date:	
Change:	
By:	
Reason:	

Qualification

Tang, Walter /

Emission Trading

United Nations Framework Convention on Climate Change

Auditor No. :
(AuditorenRegNr)Appointed:
(Zugelassen)☒ jaQualification Level: Lead Auditor
(Qualifikationsstufe)External:
(Externer)☐ jaAdd. reviewer: ☒ yes
(Zusätzlicher Prüfer)EAC Scopes:
(EAC Branchen)CDM 01 - Energy industries (renewable - / non-renewable sources)
CDM 02 - Energy distribution
CDM 03 - Energy demand
CDM 13 - Waste handling and disposal
CDM 04 - Manufacturing industriesAdd. qualification:
(zus. Qualifikation)First Appointment:
(Erstberufung)

10/11/2011

Valid to:
(Gültig bis)

09/11/2015

Remarks:

Appointed as Technical Reviewer for TA 1.1, 1.2, 2.1, 2.2, 3.1 Direct work experience. TA 4.3, 4.5, 13.1 based on Annex D para 9 of the Accreditation Standard

Languages:

Chinese simplified
English

Experience Exchange

Date

Location

Remarks

Monitoring

Latest Monitoring:
(letzte Beurteilung)Next
Monitoring:
(nächste
Beurteilung)

Remarks:

History of scope allocation

Date: 2012-02-13
Change: EAC CDM added
By: Praveen Urs
Reason:

Date: 2012-02-13
Change: EAC CDM, CDM, CDM, CDM added
By: Praveen Urs
Reason:

History

Created:	12/06/2011 05:00:51 PM	Walter Tang/Chn/TUV
Modified:	07/06/2012 04:47:48 PM	Praveen Urs/Chn/TUV
	07/02/2012 03:08:57 PM	Praveen Urs/Chn/TUV
	07/02/2012 03:08:48 PM	Praveen Urs/Chn/TUV
	05/15/2012 03:30:46 PM	
	02/13/2012 08:00:10 PM	
	12/06/2011 05:01:30 PM	

Export to ICMS

Last Export: