VALIDATION REPORT

PROGRAMME OF ACTIVITY

Programme of Activity

Installation of Energy Efficient Transformers (IEET)

18 June 2014

Japan Consulting Institute

REPORT NO. JCI-CDM-VAL-11/165

REVISION NO. 03

Validation Report No.	JCI CDM VAL-11/165
Date of revision	18 June 2014
Project name	Installation of Energy Efficient Transformers (IEET)
Project Participant(s)	Kenya Power and Lighting Company/Standard Bank Plc
Host Country	Kenya (CPA001: Installation of Energy Efficient Transformers (IEET))
Project site Location	The geographical boundary of the CPA is the Republic of Kenya
Methodology	AM0067 Version 02.0.0
Scale	☑ Large Scale ☐ Small Scale
Sectoral Scope/ Technical Area	Sectoral Scope : 2 / Technical Area: 2.1
GHG reducing measure/ Technology	Reduction of electric loss by replace/install a high efficiency transformer
Emission Reduction estimated	（CPA001） 23,021t-CO_2e / year (average)

Validation Team	**Name**
Team leader	Shigeo Aoki
Team member	Shigeru Miyazawa
Team member	-

Technical Reviewer	Masatoshi Shibata

Conclusion of validation
☑ **Positive opinion**: JCI's opinion is that the proposed CDM project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the methodology. Hence, JCI provides a positive opinion and requests the registration of the proposed project as a CDM project activity.
☐ Negative opinion: JCI's opinion is that the proposed CDM project does not meet all relevant UNFCCC requirements for the CDM and all relevant host country criteria and the supportive evidences are not provided sufficiently. Hence, JCI will not provide a positive opinion and requests the registration of the proposed project as a CDM project activity.

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Approved by	**Checked by**
Akio Yoshida Executive Director , JCI CDM Center	Takayuki Abe Evaluation Group Manager, JCI CDM Center

Abbreviations

AM0067	AM0067 Version 02.0.0. "Installation of Energy Efficient Transformers in a Power Distribution Grid"
BM	Build Margin
DOE	Designated Operational Entity
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CERs	Certified Emission Reductions
CM	Combined Margin
CME	Coordinating/ Managing Entity
CO_2	Carbon dioxide
CPA-DD	Component Project Activity Design Document
DOE	Designated Operational Entity
DNA	Designated National Authority
EB	The CDM Executive Board under COP/MOP
EIA	Environmental Impact Assessment
FOIK	First of Its Kind
KPLC	The Kenya Power & Lighting Company Co. Ltd. (Implementer of CPA001)
Kenya	The Republic of Kenya
GHG	Greenhouse Gas
JCI	Japan Consulting Institute
KP	Kyoto Protocol
LoA	Letter of Approval
OM	Operating Margin
PP	Project Participant
SBP	Standard Bank Plc
UK	United Kingdom of Great Britain and Northern Ireland
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation and Verification Standard version 06.0

CONTENT

I. EXECUTIVE SUMMARY - VALIDATION OPINION

Japan Consulting Institute (JCI) has performed a validation of the "Installation of Energy Efficient Transformers (IEET)" as the CDM PoA. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided JCI with sufficient evidence to determine the fulfillment of stated criteria.

The host country is The Republic of Kenya (Kenya) and the Annex I country is United Kingdom of Great Britain and Northern Ireland (UK). Both countries fulfill the participation criteria. Kenya have approved the project and authorized the project participants. The DNA from UK confirmed that the project assists in achieving sustainable development.

The Programme and project correctly applied AM0067 "Installation of Energy Efficient Transformers in a Power Distribution Grid", and referred to "Combined tool to identify the baseline scenario and demonstrate additionality, Version 05.0.0, EB70, Annex 09 " and "Tool to calculate the emission factor for an electricity system".

The total emission reductions from first CPA (CPA001) under the proposed PoA are estimated to be on the average 23,021 tCO_2e per year over the selected 10 year crediting period. The starting date of crediting period is from 01/07/2015 as CPA001. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change. Adequate training and monitoring procedures have been implemented.

In summary, it is JCI's validation conclusion that the "Installation of Energy Efficient Transformers (IEET)" as PoA-DD Version 15.0 dated 11/06/2014 and "Installation of Energy Efficient Transformers (IEET) CPA001" project as described in the CPA-DD Version 15.0 dated 11/06/2014 meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies AM0067, Version 02.

JCI thus provides a positive validation opinion and requests for the registration of the proposed project as a CDM Programme of Activities.

II. INTRODUCTION OF VALIDATION

The Standard Bank Plc has commissioned JCI to perform a validation of the "Installation of Energy Efficient Transformers (IEET)" as the CDM PoA project in Kenya (hereafter called "the Programme").

This report summarizes the findings of the validation of the Programme, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

1. Objective of CDM validation

The objective of the validation is to have an independent assessment of proposed project activities against the applicable CDM requirements as set out in decision 3/CMP.1, its annex and relevant decisions of the COP/MOP, on the basis of the project design document.

In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria.

Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

2. Validation approach

The validation approach is to determine whether the proposed project activity and proposed PoA complies with the requirements of paragraph 37 of the CDM M&Ps, the applicability conditions of the selected methodology and guidance issued by the Board and to assess the claims and assumptions made in the PoA-DD (including generic CPA-DD) and specific CPA-DD.

The validation is not meant to provide any consultancy towards the project participants.

However, stated requests for clarifications and/or corrective actions may have provided input for improvement of Programme and the project design.

3. Means of validation

JCI applies the means of validation specified throughout the CDM Validation and Verification Standard version 06.0 (VVS) and where appropriate standard auditing techniques, including, but not limited to:

(a) Document review, involving:

(i) A review of data and information;

(ii) Cross checks between information provided in the CPA001 (PoA-DD, CPA-DD) and information from sources other than those used, if available, the DOE's sectoral or local expertise and, if necessary, independent background investigations.

(b) Follow-up actions (e.g. on-site visit and telephone or email interviews), including:

(i) Interviews with relevant stakeholders in the host country, personnel with knowledge of the project design and implementation;

(ii) Cross checks between information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted.

(c) Reference to available information relating to projects or technologies similar to the proposed CDM project activity registered and under validation; and

(d) Review, based on the approved methodology being applied, of the appropriateness of formulae and correctness of calculations.

3.1 Corrective action requests, clarification requests and forward action requests

If, during the validation of a project activity, JCI identifies issues that need to be further elaborated upon, researched or added to in order to confirm that the project activity meets the CDM requirements and can achieve credible emission reductions, JCI shall ensure that these issues are correctly identified, discussed and concluded in the validation report.

JCI 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.

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

JCI 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.

JCI shall resolve or "close out" CARs and CLs only if the project participants modify the project design, rectify the PDD (PoA-DD, CPA-DD) or provide adequate additional explanations or evidence that satisfies the DOE's concerns. If this is not done, the DOE shall not recommend the project activity for registration to the CDM Executive Board.

JCI shall report on all CARs, CLs and FARs in its validation report. This reporting shall be undertaken in a transparent and unambiguous manner that allows the reader to understand the nature of the issue raised, the nature of the responses provided by the project participants, the means of validation of such responses and clear reference to any resulting changes in the PDD (PoA, CPA-DD) or supporting annexes.

The validation protocol consists of two tables. The different columns in these tables are described as followings.

Validation protocol tables

Table 1: Requirements checklist (PoA-DD) and Table 2 (specific CPA-DD)
✧ Requirement (Checklist Question) : The various requirements in Table 1 and Table 2 are the checklist questions that the project should meet. The checklist is organised in different sections, following the logic of the latest VVS, the PoA-DD, CPA-DD Guidelines and the PoA-DD, CPA-DD templates. Each section is then further sub-divided. ✧ Reference : Gives reference to documents where the checklist question or item is found. Paragraph No. of VVS is referred. ✧ Check Comment : The column is used to elaborate and discuss the checklist question and/or the conformance to the question. ✧ ID No. of CAR, CL and FAR : · ID No. of **CAR, CL** and **FAR** is described. · Corrective Action Request (**CAR**) is used due to non-compliance with the checklist question. · Clarification Request (**CL**) is used when the validation team has identified a need for further clarification. · Forward Action Request (**FAR**) is used to highlight issues related to project implementation that require review during the first verification of the project activity.

Table 3: Resolution of Corrective Actions, Clarification Requests and Forward Action Requests
✧ Clarifications and corrective action requests : If the conclusions from the draft Validation are a **CAR,** a **CL** or a **FAR**, these should be listed in this section. ✧ Ref. to checklist question in Table1 (PoA-DD) and Table 2 (CPA-DD): Reference to the checklist question number in Table1 where the **CAR, CL** or **FAR** is explained. ✧ Summary of project owner response : The responses given by the project participants during the communications with the validation team should be summarised in this section. ✧ Validation team conclusion : This section should summarise the validation team's responses and final conclusions.

4. Global Stakeholder Consultation

JCI made the PoA-DD, CPA-DD version 01 of 10 April 2012 of the project activity under consideration publicly available on UNFCCC website and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 17 April 2012 to 16 May 2012.

As a result of consultation, no comment was received during above 30 days period.

III. VALIDATION WORK

JCI carried out the validation work to ensure that the project activity complies with the requirements of paragraph 37 of the CDM modalities and procedures

1. Validation Team

Details of the validation team are shown in below Table.

Role/Qualification	Name	Qualified Technical Areas related to the Project	On-site Visit
All relevant issues / Team Leader	Shigeo Aoki	2.1 Electricity distribution	-
CDM auditor / Team Member	Shigeru Miyazawa	2.1 Electricity distribution	✓

Details of the technical reviewer are shown in below Table.

Name	Qualified Technical Areas related to the Project
Masatoshi Shibata	2.1 Electricity distribution

2. Appointment certificate of the DOE's validation team member

The certificate of appointment of validation team member is attached in Appendix B to this report.

3. Quality Control within the team of the validation process

The validation report worked out by the team underwent an internal review process for the assurance of being in compliance with the applicable requirement of the latest version of VVS.

JCI applies internally established Quality Management Program for the required review process, which is defined as follows;

1) Internal Review for the interim check by the internal audit team and the technical reviewer
2) The evaluation of the validation work in the CDM evaluation committee consists of outside experts
3) Internal review for the final check by the internal audit team and the technical reviewer

The review and evaluation including the technical review are implemented for every validation work by the competent personnel assigned in accordance with JCI's qualification scheme for CDM validation and verification.

4. Desk Review

Document review, involving:

(i) Review of data and information to verify the correctness, credibility and interpretation of presented information;
(ii) Cross checks between information provided in the PoA-DD, CPA-DD and information from sources other than that used, if available, and if necessary independent background investigations

4.1 Document review

The PoA-DD and specific CPA-DD (CPA001) were submitted to JCI in April 2012. The additional documents related to the PoA have been reviewed by following process.

Document review, involving:

(i) Review of data and information to verify the correctness, credibility and interpretation of presented information;

(ii) Cross checks between information provided in the PoA-DD, CPA-DD and information from sources other than that used, if available, and if necessary independent background investigations

4.2 Document list

All the relevant documents to be reviewed through the whole validation process are listed in tabular form in the following table (Table III-1):

The following table outlines the documentation reviewed during the validation:

Table III-1 Documents list

No.	Title
1.	**<DDs for POA and CPA>**
1.1	CDM-PoA-DD version 1.0, 10/04/2012 (GSC)
1.2	CDM-CPA-DD version 1.0, 10/04/2012 (GSC)
1.3	CDM-PoA-DD version 14.0 dated 25/07/2013
1.4	CDM-CPA-DD version 14.0 dated 12/06/2013
1.5	CDM-PoA-DD version 15.0, dated 11/06/2014
1.6	CDM-CPA-DD version 15.0, dated 11/06/2014
2.	**<Letters of Approval>**
2.1	LOA (Letter of Approval) dated on 25/06/2012 by DNA of Kenya
2.2	LOA (Letter of Approval) dated on 15/08/2012 by DNA of UK
2.3	Application for A Compliance Letter on EIA dated on 09/06/2012 by NEMA of Kenya
2.4	Modalities of Communication
3.	<Outline of the related entities >
3.1	Company profile of Standard Bank Plc. as the Coordinating / Managing entity (CME)
3.2	Company profile of Kenya Power and Ligting Company as the implementer of CPA001 < http://www.kplc.co.ke.htm>
3.3	Company profile of Cool nrg International Pty Ltd as CDM Consultant
4.	**<Referenced Documents (Methodology, Guidance, Criteria, etc. of UNFCCC)>**
4.1	CDM Validation and Verification Standard (VVS), Version 06.0
4.2	AM0067 - Installation of Energy Efficient Transformers in a Power Distribution Grid, Version 02.0
4.3	Combined tool to identify the baseline scenario and demonstrate additionality, Version 05.0.0, EB70, Annex 09
4.4	Tool to calculate the emission factor for an electricity system, Version 04.0, EB75, Annex15
4.5	Clean Development Mechanism Project Cycle Procedure, Version 06.0
4.6	Glossary of CDM terms, Version 07.0 EB70 Annex 07.
4.7	Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities, Version 03.0
4.8	Guidelines for completing the programme design document form for CDM programme of activities, Version 04.0
4.9	Guidelines for completing the component project activity design document form, Version 01.0, EB66 Annex 16
4.10	Guideline on the demonstration and assessment of prior consideration of the CDM Version 04, EB62 Annex 13
4.11	Procedures for registration of a Programme of Activities as a single CDM project activity and issuance of certified emission reductions for a Programme of Activities (version 04.1), EB 55 Annex 38
4.13	"F-CDM-MOC "Modalities of Communication Statement (Version 02.1)
4.14	Guidelines on additionality of first-of-its-kind project activities (Version 02.0)
5.	**< Basic Reports for the Project>**
5.1	Economic Analysis of Efficient Distribution Transformer Trends(ORNL-6927) published by Oak Ridge National Laboratory

No.	Title
5.2	Technical/Commercial Losses Study Report by Manitoba Hydro International
5.3	Nairobi-Mombasa Transmission Line Feasibility Study by Vattenfall Power Consultant on May 2007
5.4	ANNUAL REPORT & FINANCIAL STATEMENTS 2010/2011 by THE KENYA POWER & LIGHTING COMPANY LIMITED
5.5	"AN INTRODUCTION TO EPC" EPC TOOLKIT FOR HIGHER EDUCATION, APRIL 2009
5.6	THE ENERGY ACT (NO. 12 OF 2006) APPROVAL OF SCHEDULE OF TARIFFS FOR SUPPLY OF ELECTRICITY BY THE KENYA POWER AND LIGHTING COMPANY LIMITED SET BY THE ENERGY REGULATORY COMMISSION UNDER POWERS CONFERRED UNDER SECTION 45 OF THE ENERGY ACT, 2006
5.7	THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT, 1999 No. 8 of 1999 Date of Assent: 6th January, 2000
5.8	ENERGY EFFICIENCY IN KENYA By Eng. David M. Mwangi - Chief Manager, Planning, Research & Performance Monitoring, The Kenya Power and Lighting Co. Ltd.
5.9	WORLD ENERGY OUTLOOK 2007 by International Energy Agency(OECD)
5.10	Kenya: Integrated assessment of the Energy Policy "With focus on the transport and household energy sectors"
5.11	"Scaling up Renewable Energy in Africa" 12th Ordinary Session of Heads of State and Governments of AFRICAN UNION, Addis Ababa, Ethiopia by UNIDO Vienna, 2009
5.12	Kenya Vision 2030 by Ministry of Planning and National Development
5.13	Updated Least Cost Power Development Plan Study Period; 2011-2031 on March 2011 by Republic of Kenya, Ministry of Energy
5.14	Carbon viability of the proposed amorphous transformers project by the Kenya Power
6.	**< Related Codes, Regulations, Standards for Programme >**
6.1	Specification for Distribution Transformer Part2"Both Ground Mounted and Pole Mounted Three Phase Oil Type Distribution Transformer" 11000/433V:50kVA, 100kVA, 200kVA and 315kVA, 33000/433V:50kVA, 100kVA, 200kVA and 315kVA date of issue 2012-07-11
6.2	Specification for Distribution Transformer Part3"Both Ground Mounted and Pole Mounted Three Phase Oil Type Distribution Transformer" 11000/433V:315kVA,630kVA and 1000kVA, 33000/433V:630kVA and 1000kVA date of issue 2012-07-11
6.3	International Standard "Power Transformers IEC 60076-1" Edition 2.1 2000-04
6.4	International Standard "Power Transformers Application guide IEC 60076-8" First Edition 1997-10
6.5	Standard EN 50464-1 "European standardisation for transformer losses reduction"
6.6	Selecting Energy Efficient Distribution Transformers, A Guide for Achieving Least-Cost Solution, June 2008
7.	**< Published references >**
7.1	KPLC Distribution Transformer Orders for 2006 – 2011 Extracted Form SAP
8.	**< Contracts, Agreements for the first CPA >**
8.1	Letter of Intention-Cooperation for CDM projects, KPLC-Standard Bank-30th September 2012
8.2	Letter Agreement relating to the execution of a Monitoring Agreement under the PoA(CPA001) between KPLC and Standard Bank on 09 November 2012
9.	**< Excel spread sheet for the calculation by PP >**
9.1	Excel spread sheet for estimation of emission factor of Kenya National Electricity Grid
9.2	Revised Excel spread sheet for estimation of emission reduction of CO2
9.3	ER_Efficient_transformer_feasibility_cost_summary
9.4	Excel spread sheet for titled 'Transformer Orders for 2006-2011'
10.	**< Documentary evidences, Records for the Project >**
10.1	Summary of On-site Assessment (May 29 – June 1, 2012 in Nairobi, Kenya)
10.2	Application for a first of its kind letter for the installation of energy efficient transformers programme of activities (IEET CDM PoA)
11.	**< Monitoring Plan>**
11.1	CDM Monitoring Manual for the CPA001 project
11.2	CPA Inclusion Management System Version 1.0 February 2012 by Standard Bank Plc(CME)
11.3	Managing system for the collection of records, data, and reporting to Standard Bank Plc(CME) from KPLC(CPA001 Implementer)
12.	**< Records related to stakeholder for Project>**

No.	Title
12.1	Invitation to Stakeholder Meeting held on 21 March 2012 for Energy Efficient Transformer Clean Development Mechanism(VDM) Programme of Activity(PoA) in Nairobi
12.2	Stakeholder consultation presentation
12.3	Minutes of the stakeholders meeting (when, where, who, how)
12.4	Comments from stakeholder consultations
12.5	Answers to the questionnaire from the stakeholders (when, where, who, how)

5. Follow-up actions (Interviews with relevant stakeholders in the host country)

The on-site assessment and interviews with project stakeholders were held from 29 May to 1 June 2012 at the main offices of The Kenya Power & Lighting Company Co. Ltd. in Nairobi, Kenya by Shigeru Miyazawa /JCI Validation Team Member.

The names of interviewees and topics are listed in following table.

List of interviewees at on-site visit

Ref. No.	Date	Organization/ Attendance	Topics
/10.1/	05/29 /2012 (Tue.)	**Cool Nrg international Pty Ltd** (CDM Consultant & POA, CPA-DD Author): ◆ Mr. Bernard Gakuha, CDM Project Coordinator-Kenya ◆ Ms. Mulima L. Abigael, CDM Analyst-Kenya **Kenya Power and Lighting Company** （Implementer of CPA001） ◆ Ms. Margaret Kanini, DSM Engineer ◆ Mr. Boniface K. Kinyanjui, System Planning Engineer ◆ Mr. Amos Nabaala, Planning, System Planning Engineer ◆ Mr. Stephen K. Nguli, Research & Development Engineer **Ministry of Energy** ◆ Mr. George M. Kibiru, Senior Principal Superintending Engineer **Kenya Electricity Generating Co. Ltd** ◆ Mr. Johnson K. Njeru, Chief Planning Engineer **Local Stakeholders** Sanbian Sci-Tech Co., Ltd ◆ Ms. Quan Liying, Manager of International Trade Dep. ◆ Mr. Peter Murumba **JCI CDM Centre** ◆ Mr. Shigeru Miyazawa	1. Meeting with Kenya Power Conference Room (Stima Plaza) 2. Introduction of JCI 3. Introduction of the Project by Cool Nrg international Pty Ltd and Kenya Power and Lighting Company the relations between the parties in the Project 4. Meeting the Stakeholders on PoA 5. Discussion on initial findings on PoA and CPA DD
/10.1/	05/30 /2012 (Wed)	**Cool Nrg international Pty Ltd** (CDM Consultant & POA, CPA-DD Author): ◆ Mr. Bernard Gakuha, CDM Project Coordinator-Kenya ◆ Ms Mulima L. Abigael, CDM Analyst-Kenya **Kenya Power and Lighting Company** （Implementer of CPA001） ◆ Ms. Margaret Kanini, DSM Engineer	6. Meetings and interview with local stakeholders representatives 7. Discussion on initial findings on PoA and CPA DD 8. KPLC and other facilities related to the

		◆ Mr. Boniface K. Kinyanjui, System Planning Engineer ◆ Mr. Amos Nabaala, Planning, System Planning Engineer ◆ Mr. Stephen K. Nguli, Research & Development Engineer **Rural Electrification Authority** ◆ Mr. James Muriithi, Senior Engineer, Renewable Energy & Generation **Local Stakeholders** Vijai Electricals Ltd. ◆ Mr.Rajesh Pillay, General Manager, International Energy Technik Ltd (as a Sales Agent) **JCI CDM Centre** ◆ Mr. Shigeru Miyazawa	project
/10.1/	05/31 /2012 (Thu)	**Cool Nrg international Pty Ltd** (CDM Consultant & POA, CPA-DD Author): ◆ Mr. Bernard Gakuha, CDM Project Coordinator-Kenya ◆ Ms Mulima L. Abigael, CDM Analyst-Kenya **Kenya Power and Lighting Company** （Implementer of CPA001） ◆ Ms. Margaret Kanini, DSM Engineer ◆ Mr. Boniface K. Kinyanjui, System Planning Engineer ◆ Mr. Amos Nabaala, Planning, System Planning Engineer ◆ Mr. Stephen K. Nguli, Research & Development Engineer **Kenya Power and Lighting Company(Transformer Workshop)** ◆ Mr. Sammy Njoroge, Supervisor ◆ Ms. Josephine Kasimu, E/Plant Engineer ◆ Mr. Kahoro Wachira, W/Shop Engineer **JCI CDM Centre** ◆ Mr. Shigeru Miyazawa	9. Internal meetings and discussions 10.KPLC and other facilities related to the project
/10.1/	06/1 /2012 (Fri.)	**Standard Bank Plc.** (CME of PoA) ◆ Mr. Kaaoostubh Patel, Managing Director **Cool Nrg international Pty Ltd** (CDM Consultant & POA, CPA-DD Author): ◆ Mr. Bernard Gakuha, CDM Project Coordinator-Kenya **Kenya Power and Lighting Company** （Implementer of CPA001） ◆ Ms. Margaret Kanini, DSM Engineer **JCI CDM Centre** ◆ Mr. Shigeru Miyazawa	11.Internal meetings and discussions 12. Closing meeting

IV. VALIDATION FINDINGS

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

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation.

Findings issued through the validation

JCI issued four (4) CARs and fourteen (14) CLs as shown in the Validation Protocol, Appendix A of this report. All the CAR and CLs were resolved and then closed as shown in the Table 2 of the Appendix A. One FAR has been remained as not closed and will be cleared until the starting operation of the project.

Major issues and its resolution process through the CARs and CLs are described in following items according to VVS /4.1/.

(1) Major changes in the PoA-DD and CPA-DD

Main changes in the PoA, CPA-DDs between the version published for the 30 days stakeholder commenting period and the final version submitted for registration are summarized in the table below:

Table IV-1 Major Changes in the PoA-DD, and CPA-DD

Subject and section in the P0A-DD	Original content in the PoA/1.1/, CPA-DD/1.2/	Revised content in the PoA-DD/1.5/, CPA-DD/1.6/	Issued CAR or CL Relevant tool, guidance, or guidelines applied
< PoA-DD> SECTION A. General description of PoA (b)Project participants being registered in relation to the PoA A.4. Party(ies)	1.United Kingdom of Great Britain and Northern Ireland/Standard Bank Plc (No host country)	1.Republic of Kenya/Standard Bank Plc 2.United Kingdom of Great Britain and Northern Ireland/Standard Bank Plc	CAR-1 Kenya of Host Party is added. PoA-DD was reflected properly.
< PoA-DD> SECTION B. Demonstration of additionality and development of eligibility criteria B.1. Demonstration of additionality for PoA	1. "Combined tool to identify baseline scenario and demonstrate additionality " Version 04.0.0	• EB 70 Annex 9, "*Combined tool to identify the baseline scenario and demonstrate additionality"*, Version 05.0.0. • EB 75 Annex 15, "*Tool to calculate the emission factor for an electricity system*", Version 04.0. As per the requirements of the above tools, the latest versions of the following guidelines are also considered: • EB 50 Annex 13, "*Guidelines for objective demonstration and assessment of barriers*", Version 01 • EB 69 Annex 7, "*Guidelines on additionality of first-of-its-kind project activities*", Version 02 Since this CPA has elected to demonstrate first-of-its-kind and there is only one alternative scenario left after the barrier analysis, the following steps have been applied (as per the "*Combined tool to identify the baseline scenario and demonstrate additionality"* (Version 05.0.0) to identify the baseline scenario:	CAR-3 CL-3 PoA-DD was reflected properly.
< PoA-DD,CPA-DD> Step 2: Investment analysis	Step 3: Investment analysis It is not possible to conduct an investment analysis or make an investment decision for IEET CDM-PoA due to lack of the following information necessary to make an investment decision upfront and at the time of	Not applicable.	CAR-3 CL-3 PoA-DD was reflected properly.

<table>
<tr><th>Subject and section in the P0A-DD</th><th>Original content in the PoA/1.1/, CPA-DD/1.2/</th><th>Revised content in the PoA-DD/1.5/, CPA-DD/1.6/</th><th>Issued CAR or CL
Relevant tool, guidance, or guidelines applied</th></tr>
<tr><td></td><td>submission of IEET PoA DD for validation:
i. Cost of procuring the project transformers
ii. Cost of installation
iii. Date of installation
iv. Exact type of transformers, life time, date of manufacture
v. Cost of scrapping</td><td></td><td></td></tr>
<tr><td>Step 4: Common practice analysis</td><td>There are no activities observed similar to the proposed CPAs.</td><td>Given that this CPA has been demonstrated to be first-of-its-kind, it is considered at this stage to be additional by both the “Guidelines on additionality of first-of-its-kind project activities”, Version 02 and the “Combined tool to identify the baseline scenario and demonstrate additionality” Version 05.0.0.</td><td>CAR-3
CL-3
PoA-DD was reflected properly.</td></tr>
<tr><td>Duration of PoA
Start date of PoA</td><td>01/01/2013</td><td>17/04/2012 which is the date the CDM-PoA-DD is published for GSC (Global Stakeholder Consultation), is appropriate in accordance with “Guidelines for completing the programme design document form for CDM programme of activities, Version 04.0.</td><td>CL-11
PoA-DD was reflected properly.</td></tr>
<tr><td>SECTION A. General description of CPA
A.10.Estimated amount of GHG emission reductions</td><td>
Emission reductions during the crediting period
<table>
<tr><th>Years</th><th>Annual GHG emission reductions for each year</th></tr>
<tr><td>2013</td><td>32,310</td></tr>
<tr><td>2014</td><td>32,310</td></tr>
<tr><td>2015</td><td>32,310</td></tr>
<tr><td>2016</td><td>32,310</td></tr>
<tr><td>2017</td><td>32,310</td></tr>
<tr><td>2018</td><td>32,310</td></tr>
<tr><td>2019</td><td>32,310</td></tr>
<tr><td>Total years</td><td>7</td></tr>
<tr><td>Annual average</td><td>32,310</td></tr>
<tr><td>Total estimated CO_2e</td><td>226,170</td></tr>
</table>
</td><td>
Summary of the ex-ante estimates of emission reductions
<table>
<tr><th>Year</th><th>Baseline emissions (t CO_2e)</th><th>Project emissions (t CO_2e)</th><th>Leakage (t CO_2e)</th><th>Emission reductions (t CO_2e)</th></tr>
<tr><td>1 July 2015 – 30 June 2016</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>1 July 2016 – 30 June 2017</td><td>33,229</td><td>7,650</td><td>0</td><td>25,579</td></tr>
<tr><td>1 July 2017 – 30 June 2018</td><td>33,229</td><td>7,650</td><td>0</td><td>25,579</td></tr>
<tr><td>1 July 2018 – 30 June 2019</td><td>33,229</td><td>7,650</td><td>0</td><td>25,579</td></tr>
<tr><td>1 July 2019 – 30 June 2020</td><td>33,229</td><td>7,650</td><td>0</td><td>25,579</td></tr>
<tr><td>1 July 2020 – 30 June 2021</td><td>33,229</td><td>7,650</td><td>0</td><td>25,579</td></tr>
<tr><td>1 July 2021 – 30 June 2022</td><td>33,229</td><td>7,650</td><td>0</td><td>25,579</td></tr>
<tr><td>1 July 2022 – 30 June 2023</td><td>33,229</td><td>7,650</td><td>0</td><td>25,579</td></tr>
<tr><td>1 July 2023 – 30 June 2024</td><td>33,229</td><td>7,650</td><td>0</td><td>25,579</td></tr>
<tr><td>1 July 2024 – 30 June 2025</td><td>33,229</td><td>7,650</td><td>0</td><td>25,579</td></tr>
<tr><td>Total</td><td>299,061</td><td>68,850</td><td>0</td><td>230,211</td></tr>
<tr><td>Total number of crediting years</td><td colspan="4">10</td></tr>
<tr><td>Annual average over the crediting period</td><td>29,906</td><td>6,885</td><td>0</td><td>23,021</td></tr>
</table>
</td><td>CAR-4
CPA-DD was reflected properly.</td></tr>
<tr><td>SECTION D. Eligibility of</td><td>EF $_{CO2,grid,y}$ =</td><td>EF $_{CO2,grid,y}$ =</td><td>CAR-4
CPA-DD was</td></tr>
</table>

Subject and section in the P0A-DD	Original content in the PoA/1.1/, CPA-DD/1.2/	Revised content in the PoA-DD/1.5/, CPA-DD/1.6/	Issued CAR or CL Relevant tool, guidance, or guidelines applied
CPA and estimation of emissions reductions D.6.Estimation of emission reductions 5.CO2Emission Factor	**0.6505tCO$_2$/yr**	**0.6475tCO$_2$/yr**	reflected properly.

1. Approval and authorization

1) Approval

JCI has received the Letter of Approvals from the project participant, with clearly referencing the letter itself and any supporting documentation. There is no doubt about authenticity of the LoA.

- DNA of Kenya issued LoA dated 25 June, 2012/2.1/
- DNA of UK issued LoA dated 15 August, 2012/2.2/

JCI also has confirmed the followings in the LoAs

(a) The program is approved as a CDM PoA for the purposes of Article 12 of the Kyoto Protocol
(b) The Government of Kenya is Party to Kyoto Protocol and that participation in CDM project activities is voluntary
(c) The programme contributes to the sustainable development of the host party
(d) Standard Bank Plc is the Coordinating/Managing Entity(CME) of PoA while The Kenya Power & Lighting Company Co. Ltd.(KPLC) is in charge of the CPA in Kenya.
(e) The title of the programme is precisely consistent with that in the DDs

2) Authorization

JCI confirmed that the PPs is Standard Bank Plc of UK as listed in Table A.4.1 in section A.4 of the PoA-DD, and that the information of the PP is consistent with the contact details provided in Annex 1 of the PoA-DD. It is also confirmed that no entities other than those approved as project participants are included in these sections of the PoA-DD/1.5/, CPA-DD /1.6/.

As described above, the PP is authorized with the LoAs issued by the relevant DNAs as a voluntary participant to the project activity.

3) Contribution to sustainable development

JCI confirmed that the contribution of the project to the sustainable development of the host Party is stated in the LoA from DNA of Kenya/2.1/.

2. Modalities of communications

JCI validated and confirmed that all corporate and personal details, including specimen signatures in writing in the MoC /2.4/ statement received from the CME are valid and accurate.

JCI confirmed in writing that the MoC /2.4/ statement complies with all relevant forms and requirements established as VVS Track by UNFCCC “F-CDM-MOC “Modalities of Communication Statement (Version 02.1)” /4.13/.

JCI has performed due diligence on the MoC statement in accordance with the requirements established in VVS Para. 53.

Therefore, JCI concluded the MoC statement was correctly completed and duly authorized.

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3. Management System

1) Coordinating/managing entity and participants in a PoA

JCI confirmed that SBP (Standard Bank Plc) is the entity who manages and oversees communication with JCI, the UNFCCC secretariat and the Executive Board.

JCI confirmed through the document review and the interviews with the person in responsible of the PoA project from the SBP that SBP as 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.

JCI confirmed that the management system described in the PoA-DD is in accordance with the "*Standard: Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"* Version 03.0 /4.7/.

2) Entity/individual responsible for CPA

JCI confirmed that KPLC (Kenya Power and Lighting Company Co. Ltd.) is the responsible project owner and implementer of CPA001.

JCI confirmed through the document review and the interviews with the person in responsible of the CPA project from KPLC that KPLC as implementer has the competencies to operate and monitor for the CPA-s "Installation of Energy Efficient Transformers (IEET)" within the geographical boundary of Kenya as CPA001.

The CME has developed and implement a management system that includes the following made available to the DOE at the time of validation of the PoA:

The CME demonstrated the specified criteria for the inclusion of CPA in the section B.2, the managing system in the section C of the PoA-DD, and the monitoring plan for a generic CPA in the section B.7.2 and Appendix 5 of the Generic CPA-DD in the PoA-DD /1.5/, as shown below Table IV-2.

Table IV-2 Check for Management System as PoA

	Management system of CME to ensure the eligibility criteria for inclusion	**Description in PoA-DD and CPA-DD**	**Check result**
(a)	A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies	・ recruiting CPA implementers, ・ ensuring that the proposed CPA is in compliance with PoA eligibility criteria, ・ writing the present PoA-DD and CPA-DD through service agreements with CDM consultants, ・ collecting documents and supporting evidence required for PoA-DD and CPA-DD validation, ・ communicating with the Host country DNAs and the CDM Executive Board, ・ hiring DOE to conduct validation and verification, ・ finding CERs buyers and distributing CERs revenues to CPA implementers,	OK Confirmed the appropriateness in the PoA-DD

	Management system of CME to ensure the eligibility criteria for inclusion	Description in PoA-DD and CPA-DD	Check result
		・ implementing a monitoring database, ・ training of personnel, ・ collecting monitoring data periodically, ・ preparing the monitoring reports.	
(b)	Records of arrangements for training and capacity development for personnel	The competencies of the members of the compliance team remain current, training and capacity development records in which all instruction sessions and workshops related to CDM procedures and project management shall be established.	OK Confirmed the appropriateness in the PoA-DD
(c)	Procedures for technical review of inclusion of CPAs	1. Verify that all eligibility criteria for inclusion in the PoA are met. 2. Check the procedure to avoid double counting. 3. Check if EIA has been undertaken (if required). 4. Check if stakeholder consultation has been undertaken (if required). 5. Check if all supporting documentation quoted in PoA-DD are in accordance with CPA details. 6. Complete all the sections of the CPA-DD. 7. Reviewer shall check emission reduction calculation. 8. The person responsible shall seek CME and PoA manager approval for the draft CPA-DD. 9. Delivery of approval and contact agreement for CPA inclusion. 10. A DOE is contracted. 11. CPA-DD is submitted to the DOE. 12. CARs & CLRs closed. 13. The inclusion of the CPA in the PoA is confirmed.	OK Confirmed the appropriateness in the PoA-DD
(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)	The procedure is described in B.2-2 of PoA-DD.	OK Confirmed the appropriateness in the PoA-DD
(e)	Records and documentation control process for each CPA under the PoA	The CME will establish and maintain a database for each CPA. The CME will record CPA information detail delivered by CPA implementer, as follows: ・ Name of the CPA, ・ Name of CPA implementer, ・ Contact details of CPA implementer, ・ CPA demonstrate that they can be uniquely identified by location (Country/City/Line + Serial number of transformer) ・ Installed capacity of the other relevant technical specifications of each CPA, ・ Emission reductions monitored and issued each monitoring period	OK Confirmed the appropriateness in the PoA-DD

	Management system of CME to ensure the eligibility criteria for inclusion	Description in PoA-DD and CPA-DD	Check result
(f)	Measures for continuous improvements of the PoA management system	・ Internal audits ・ A review of the previous period and the latest developments, ・ Recurring issues related to the inclusion process, ・ Comments provided by the members of the compliance team and CME, ・ Feedback from the CPA implementers, ・ Potential improvements to be implemented for the next period.	OK Confirmed the appropriateness in the PoA-DD
(g)	Any other relevant elements	NA	NA

4. PoA/CPA design documents

JCI confirmed that the PoA-DD and CPA-DD are compliance with relevant forms and guidance.

Through desk reviews and Q&A sessions with the project participant (PP), JCI confirmed that the DDs are described based on and referring to the following relevant methodology, tools, guidance, guidelines, and manual:

(1) AM0067, "Methodology for installation of energy efficient transformers in a power distribution grid" Version 02.0 /4.2/

(2) "Combined tool to identify the baseline scenario and demonstrate additionality " EB70, Annex09, Version 05.0.0/4.3/

(3) "Tool to calculate the emission factor for an electricity system" Version 04.0 /4.4/

(4) CDM Validation and Verification Standard (VVS) (Version 06.0) /4.1/

(5) Guidelines on additionality of first-of-its-kind project activities (Version 02.0)/4.14/

(6) Glossary of CDM terms (Version 07.0) /4.6/

The project design was described using the appropriate template of VVS Track (F-CDM-PoA-DD version 03.0) as shown in the DDs, those were confirmed through comparison with the template listed on the UNFCCC website.

JCI confirmed that the DDs (PoA-DD and CPA-DD) are compiled with the appropriate format and are described based on appropriate tools, guidelines, manual and guidance which are specified and requested by the PoA procedures.

5. Description of a PoA/CPAs

JCI conducted the following process to validate the accuracy and completeness of the project description;

Process: Document review through the whole validation stage and follow-up actions during on-site assessment.

- Document review: Findings (CARs, CLs) on PoA-DD and CPA-DD, Preliminary Environmental Report, contracts/agreements for the first CPA published references and Internet websites information, other relevant design data/drawings relevant laws/regulations/codes, etc.
- Follow-up action: Direct interview to the project owner, relevant stakeholders, CDM consultants etc. during the on-site assessment of the proposed PoA, as shown in the section III.
  Observation/inspection of the physical site was conducted during the period of 29 May to 01 June 2012.

As a result of the above process, JCI concluded that the descriptions of the PoA-DD /1.5/ and the final specific CPA-DD /1.6/ were accurate and their contexts were complete, and well outlined the nature and technical aspects of the project activity.

Followings are the confirmed outlines of description of PoA and CPA;

1) Description of a PoA

The Programme of Activities (PoA) of "Installation of Energy Efficient Transformers (IEET)" is designed to consist of projects applying technology of "Installation of Energy Efficient Transformers (IEET)" implemented by participating entities in Kenya.

All Installation of Energy Efficient Transformers (IEET) activities in the CPAs included in this PoA will be installed within the borders of Kenya.

Standard Bank Plc acts as the CME for the PoA, and provides an open platform for Installation of Energy Efficient Transformers (IEET) and service suppliers to participate in the PoA by developing their own Component project activity (CPAs).

2) Description of a CPA

The context of the PoA, PoA-DD /1.1/ and CPA-DD/1.2/ were checked during the on-site assessment conducted from 29 May to 1 June, 2012 with the following measures:

1) Observation of the project site
2) Cross-check of the construction work with relevant drawings provided by the project participant.
3) Interviews with the project participant, relevant organizations/entities, and local stakeholders shown in section III-5 above and in on-site assessment report /10.1/.

As the result of the above steps and the afterword validation works, JCI validated and concluded that the descriptions of the PoA-DD, CPA-DD /1.5//1.6/ are correct and its context is sufficient, and well outlines the nature and technical aspects of the project activity.

The major features of the CPA001 "Installation of Energy Efficient Transformers (IEET)" as the project activities, which are observed during the site visit and described in the PoA-DD /1.5/, CPA-DD/1.6/, are summarized as below.

- Major features of the CPA001 project
  - Project implementer : Kenya Power and Lighting Company Co. Ltd., Kenya
  - Sectral Scope : 2
  - Technical Area : 2.1 Electricity distribution
  - Project type : CPA001 "Installation of Energy Efficient Transformers (IEET)"
  - Project Operational Lifetime : 28 years
  - Fixed crediting period : 10 years
  - Start date of CPA001 : 01/07/2015 (expected)
  - Geographical boundary : Within the borders of Kenya as CPA001
    Other countries will be added post-registration in-line with the project standard and if applicable the latest "Standard for the development of eligibility criteria for the inclusion of a project activity as a CPA under the PoA".
  - Applicable type of transformer:
    (1) Application to: All related Distribution Grid in the boundary
    (2) Ratings: 11kV and 33kV as primary voltage and 15 to 1000kVA as capacity
    (3) Installation of new Project transformer and for replacing baseline transformer with new Project transformer.

- The ratings and expected No. /Capacity in total. (29,000sets/ 3,766,130kVA)
  - 11kV Distribution transformers. (20,491sets, 2,904,265kVA)

kV	kVA	No. of Transformers	(for replacement)	(for new site)	Sub-total of Capacity (kVA)

11	15	2,707	812	1,895	40,605
	25	2,053	616	1,437	51,325
	50	2,086	626	1,460	104,300
	100	4,547	1,364	3,183	454,700
	200	6,964	2,090	4,874	1,392,800
	315	1,663	499	1,164	523,845
	630	363	109	254	228,690
	1,000	108	32	76	108,000
Total		20,491	6,148	14,343	2,904,265

- 33kV Distribution transformers. (8,509sets, 861,865kVA)

kV	kVA	No. of transformers	(for replacement)	(for new site)	Sub-total of Capacity (kVA)
33	15	0	0	0	0
	25	1,824	547	1,277	45,600
	50	2,604	782	1,822	130,200
	100	2735	821	1,914	273,500
	200	592	178	414	118,400
	315	627	188	439	197,505
	630	82	25	57	51,660
	1,000	45	14	31	45,000
Total		8,509	2,555	5,954	861,865

JCI validated by cross-checking with the followings the tabled above to be credible and appropriate in accordance with the approved baseline and monitoring methodology AM0067 "Methodology for installation of energy efficient transformers in a power distribution grid".

(Cross-checked data);

- ✧ Kenya Vision 2030 by Ministry of Planning and National Development/5.12/ forecasted power demand increasing /year 11% -13% in 2013-2015.
- ✧ KPLC have made Tender of existing type transformer in 2011: 20,877 Sets and 3,264,455kVA Capacity as total

➢ Main issue on the realization of the PoA, and the counter measure adapted by PoA

- Main issue on the realization of the PoA :
  - ✧ Higher price(cost increased):

    Energy Efficiency Transformer uses "an amorphous" as a material of core instead of Silicon steel for Ordinary Transformer. An amorphous, itself is a low loss material compared to Silicon steel, but has lower allowable flux density (Flux/mm^2) for core material. And then, the same application of core needs bigger size of core and approximately 1.3 times in size to achieve an equivalent flux density. Therefore, the cost of a transformer is increased directly and proportionally on the amount of material and size.

  - ✧ No loss evaluation on Tender of Distribution Transformers Procurement:

    Although a Loss Evaluation on the Tender has been applied mainly to a Large Capacity Transformer for application to power station and substation, no loss evaluation has been applied to Distribution Transformers and just offered price comparison based on same loss specified by the Tender specification has been applied through the world.

- The counter measure adapted by PoA:
  - ✧ In addition to the aim of this PoA, executed through its operating and implementing framework, for accelerating the adoption of energy efficient transformers across electricity distribution grids, the following counter measures will be adapted:
  - ✧ Adapt a Loss-evaluation as "Total Owning Cost (T.O.C.)" on transformer procurement to compete ordinary higher loss transformer with add-on evaluated $ value as the balance loss value (reduced loss) and promote low loss transformer.
  - ✧ An example of loss evaluation based on reference values of ER calculation consists of ;

    1. Extra price of Project Transformer: 23% to Baseline
    2. Loss Evaluation factors:

       For No-load Loss (NL): 5.537 US$/W

       For Load Loss (LL): 2.373 US$/W

Transformer Type		Tender price(US$)		Loss values on Tender(W)				Evaluated price(US$)		
		Baseline	Project	Baseline		Project		Baseline	Project	Baseline / Project (%)
	kVA			NL	LL	NL	LL			
11kV	15	1,119	1,375	42.95	264	8.59	237.60	1,983	2,049	103.4%
	25	1,580	1,943	63.00	286	12.60	257.40	2,608	2,691	103.2%
	50	2,770	3,405	98.00	534	19.60	480.60	4,580	4,781	104.4%
	100	3,584	4,406	179.63	1,108	35.93	997.20	7,207	7,234	100.4%
	200	5,374	6,607	272.05	2,380	54.41	2,142.00	12,528	12,556	100.2%
	325	7,496	9,216	433.40	2,905	86.68	2,614.50	16,789	16,590	98.8%
	630	12,712	15,629	815.00	5,110	163.00	4,599.00	29,350	28,657	97.6%
	1000	18,663	22,946	950.00	7,034	190.00	6,330.60	37,609	40,690	108.2%

Transformer Type		Tender price(US$)		Loss values on Tender(W)				Evaluated price(US$)		
		Baseline	Project	Baseline		Project		Baseline	Project	Baseline / Project (%)
	kVA			NL	LL	NL	LL			
33kV	15									
	25	2,039	2,507	82.21	315	16.44	283.50	3,242	3,345	103.2%
	50	3,568	4,387	104.00	634	20.80	570.60	5,649	6,007	106.3%
	100	4,543	5,586	199.00	940	39.80	846.00	7,876	8,037	102.0%
	200	7,240	8,901	362.00	2,465	72.40	2,218.50	15,094	15,151	100.4%
	325	9,047	11,123	528.00	3,593	105.60	3,233.70	20,497	20,234	98.7%
	630	22,310	27,429	1,161.00	4,438	232.20	3,994.20	39,270	39,246	99.9%
	1000	30,768	37,828	1,678.00	6,703	335.60	6,032.70	55,965	55,592	99.3%

JCI validated by cross-checking with the followings, the tabled above is credible and appropriate in accordance with the approved baseline and monitoring methodology AM0067 "Methodology for installation of energy efficient transformers in a power distribution grid".

(Cross-checked data);

- ✧ Extra price of Project Transformer: By interviews with project stakeholders and other publicly available materials, an extra price is around 30%.
- ✧ Loss Evaluation factors; Depend on the energy source in a country, the value in world

is;

(For No-load Loss): 2.0-6.0 US$/W

(For Load Loss): 1.0-3.0 US$/W

✧ Loss values and cost for Baseline Transformers and Project Transformers:

Baseline data have been selected by the criteria of "Top 20%" from KPLC data in 2006-2012, and Project Transformers applied have been applied based on the confirmation through interviews with project stakeholders.

Based on the above, JCI confirmed and validated that evaluated price comparison after loss evaluation between Baseline Silicon and Project Amorphous shows between 97% and 108% in all voltage and capacity range, and therefore, Loss evaluation as a counter measure adapted by PoA is feasible on the realization of the PoA

The above major features described in the DDs were cross-checked and confirmed through desk reviews of relevant documents, observation of the facilities related to the project and interviews with relevant entities during the on-site visit conducted from May 29 through 1 June 2012.

Through an observation of the facilities related to the project, JCI confirmed that the first CPA001 will be in the republic of Kenya, especially, installation of Energy Efficient Transformers (IEET) on the all related Distribution Grid in the boundary, and other countries will be added post-registration in-line with the project standard and if applicable the latest "Standard for the development of eligibility criteria for the inclusion of a project activity as a CPA under the PoA". And also, the proper facilities, such as, storage facilities for Energy Efficient Transformers will be provided with enough space/capacity together with Data Management System, proper personnel and ID system for IEET for both new for install/replace and damaged (back from the Grid) in the boundary.

CL-2, CL-11 were raised to revise the credit starting date to reflect the validation work schedule. The starting date was revised appropriately, CL-11 was closed. Also CAR-4 was raised to revise the ER amount to reflect the revision the credit starting date. The amount was recalculated correctly in reflecting the revision of the date, CAR-4 was closed.

In summary JCI could confirm that the project descriptions in the CPA001/1.4/ are accurate and also complete.

6. Additionality of a project activity

6.1 Demonstration of additionality of the PoA as a whole

According to the Standard /4.8/, demonstration of additionality is required to comply with following requirements as summarized in Table IV-3.

Table IV-3 Check for additionality conditions as PoA

	Requirements	PoA-DD	Check result
1	(Para 7. of the Standard) Additionality shall be demonstrated by establishing that in the absence of CDM, none of the implemented CPAs would occur.	A proposed project activity is the first of its kind in the applicable geographic area (Kenya)	OK A proposed project activity is the first of its kind in the applicable geographic area (Kenya)
2	(Para 8. of the Standard) PoAs that consist of one or more microscale projects as CPAs shall include eligibility criteria derived from all the relevant requirements of the "Guidelines for demonstrating additionality of	N/A	OK

	microscale project activities"		
3	(Para 9. of the Standard) PoAs that consist of one or more small-scale projects as CPAs shall include eligibility criteria derived from all the relevant requirements of the "Guidelines for demonstrating additionality of small-scale project activities".	N/A	OK
4	(Para 10. of the Standard) PoAs that consist of one or more large scale projects as CPAs shall include eligibility criteria derived from all the relevant requirements contained in the additionality section of the large scale methodologies applied to the CPAs.	The additionality of a PoA was assessed in accordance with the guidelines stipulated by the latest version of approved baseline and monitoring methodology AM0067"Methodology for installation of energy efficient transformers in a power distribution grid" , Version 02.	OK
5	(Para 11. of the Standard) Large-scale CPAs (i.e. CPAs that apply one or more large-scale CDM methodologies or combination of large scale and small-scale CDM methodologies), small-scale CPAs (i.e. CPAs that apply only small-scale CDM methodologies) and microscale CPAs (i.e. CPAs comprised of only units that are below the thresholds that define microscale project activities) may be included in the same PoA. The "Guidelines for demonstrating additionality of microscale project activities" may be applied to a large-scale or small-scale CPA if all of the units in the CPA in aggregate are below the microscale thresholds. The "Guidelines on the demonstration of additionality of small-scale project activities" may be used for small-scale CPAs only.	The additionality of the PoA was assessed in accordance with the latest version of the "Combined tool to identify the baseline scenario and demonstrate additionality, Version 05.0.0, EB70, Annex 09, which was stipulated by the latest version of approved baseline and monitoring methodology AM0067 "Methodology for installation of energy efficient transformers in a power distribution grid", Version 02.	OK, Confirmed the PDDs, the Tools, the guidelines and the Methodology applied for the PoA.
6	(Para 12. of the Standard) The large-scale PoA design document (PoA-DD) form and the large-scale CPA design document (CPA-DD) form shall be used for PoAs applying both large-scale and small-scale methodologies.	The large-scale PoA design document (PoA-DD) form and the large-scale CPA design document (CPA-DD) form were used for a PoA.	OK, Confirmed the PDDs.
7	(Para 13. (a) of the Standard) The CME shall demonstrate that compliance with the additionality-related eligibility criteria set in the PoA design document will ensure that all the relevant additionality-related guidelines, tools or any requirements embedded in the methodologies are met. (a) When investment analysis is used for the demonstration of additionality, there are two options to meet the above requirements: (i) One option is to conduct an investment analysis to each CPA. In this case, the	The additionality of a PoA was assessed in accordance with the Tool stipulated by the latest version of approved baseline and monitoring methodology AM0067 "Methodology for installation of energy efficient transformers in a power distribution grid", Version 02. In this regard, the demonstration applies the latest of the followings: •"Combined tool to identify the baseline scenario and demonstrate additionality, Version 05.0.0,	OK, Confirmed the Guidelines and Tools to be applied for large scale projects of CPA • Since this CPA has elected to demonstrate first-of-its-kind and there is only one alternative scenario left after the barrier analysis, the following steps

	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, in the investment analysis conducted for the purpose of demonstrating the additionality of the CPA. (ii) Another option is not to conduct an investment analysis to each CPA but to define technical and economic criteria for the inclusion of the CPA in the PoA-DD. In this case, the coordinating/ managing entity shall determine, through the application of an investment analysis, a range of values for each input parameter which qualify a CPA for inclusion in the PoA. At the time of inclusion of a CPA, the coordinating/managing entity shall assess whether the actual values, applicable to the CPA at the time of inclusion, fall within the range that was specified in the PoA-DD. For this option, any requirements with regard to the update of eligibility criteria specified in the applied methodologies shall be followed. The procedures for post-registration changes (see section 6.2 of the "Clean development mechanism project cycle procedure") shall be followed for updating the eligibility criteria when this option is chosen.	EB70, Annex 09. As per the requirements of the above tools, the latest versions of the following guidelines are also considered: • EB 50 Annex 13, *"Guidelines for objective demonstration and assessment of barriers"*, Version 01 • EB 69 Annex 7, "*Guidelines on additionality of first-of-its-kind project activities*", Version 02 The project is not applied investment analysis for demonstration of additionality. Then the Para 13. (a) is not aplicable to the project.	have been applied (as per EB 69 Annex 7, "*Guidelines on additionality of first-of-its-kind project activities*", Version 02
8	(Para 14. of the Standard) For PoAs involving combinations of technologies/measures and/or methodologies, the eligibility criteria relative to each of them shall be proposed to demonstrate additionality. Types of combinations as indicated in paragraph 31 below shall be taken into account	N/A	OK, Confirmed that the combination case will not be applied

As per the Guidelines on additionality of first-of-its-kind project activities (Version 02.0) /4.14/, the DDs /1.5/, /1.6/ further stipulated that the proposed project activity is the First-of-its-kind in the applicable geographical area:

A proposed project activity is the first of its kind in the applicable geographic area if:

(a) The project is the first in the applicable geographical area that applies a technology that is different from technologies that are implemented by another project, which are able to deliver the same output and have started commercial operation in the applicable geographical area before

the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of the proposed project activity, whichever is earlier.

This is the first CPA in the applicable geographical area (Republic of Kenya) that applies amorphous transformer technologies that are 80%[6] less No Load Loss than the transformer technologies that are currently installed (i.e. Cold Rolled Grain Oriented (CRGO) silicon steel plate transformers) in the national electricity grid of Kenya. There are currently no ongoing or proposed projects involving the installation of energy efficient transformers similar to the IEET proposed CPA in the national electricity grid of the Republic of Kenya[7]. All transformers that are currently installed in the national electricity grid of Kenya use CRGO silicon steel plate core technology considered inefficient compared to the proposed IEET PoA transformers[7]. The technology applied by the CPA has the same output as the currently installed transformers. Furthermore, the CRGO silicon steel plate transformers are currently installed in the Kenyan national electricity grid, and therefore have started commercial operation in Kenya before the PoA-D
D was published for global stakeholder consultation (17 April, 2012).

Official specifications and orders from KPLC, the owner of the first CPA and the sole manager of the Kenyan national electricity grid, demonstrate that the utility has not purchased or installed transformers which have a similar or higher energy saving potential than the transformers to be implemented under the proposed CPA. Evaluation of no-load losses from official vendor /supplier records shows that the proposed transformer technology is 80%[8] less No Load Loss than the technology of the baseline transformers.

For above, JCI validated and confirmed that, as the DDs /1.5/, /1.6/ stipulated, the project activity verifies the First-of-its-kind demonstration in accordance with the Guidelines on additionality of first-of-its-kind project activities (Version 02.0) /71/ as summarised in Table IV.4 below.

Table IV-4 First-of-its-kind demonstration

Project side	Installation of Energy Efficient Transformer (IEET)	Check Result
Applicable area	Kenya	OK, Confirmed by on-site observation and DDs /1.5/, /1.6/
Measure	Switch of technology with or without change of energy source including energy efficiency improvement Energy efficiency improvements Applies amorphous transformer technologies	OK, Confirmed by on-site observation and document review /5.14/ and equipment specifications /6.1/, /6.2/
Output (Good/ services)	Energy efficient transformer with less no load loss	OK, Confirmed by on-site observation and document review /5.14/ and equipment specifications /6.1/, /6.2/

[6] Selecting Energy Efficient Distribution Transformers (SEEDT): A Guide for Achieving Least-Cost Solutions, pp. 25.

[7] Energy Regulatory Commission, RE: Application for first of its kind letter for the installation of energy efficient transformers programme of activities, December 2012, Kenya.

[8] '12122012 ERs IEET CPA 001.xlsx' shows a clear demonstration of the losses scenario for both proposed and baseline transformers.

Project side	Installation of Energy Efficient Transformer (IEET)	Check Result
Different technologies	This is the first CPA in the applicable geographical area (Republic of Kenya) that applies amorphous transformer technologies that are 80%[6] less No Load Loss than the transformer technologies that are currently installed (i.e. Cold Rolled Grain Oriented (CRGO) silicon steel plate transformers) in the national electricity grid of Kenya. There are currently no ongoing or proposed projects involving the installation of energy efficient transformers similar to the IEET proposed CPA in the national electricity grid of the Republic of Kenya[7]. All transformers that are currently installed in the national electricity grid of Kenya use CRGO silicon steel plate core technology considered inefficient compared to the proposed IEET PoA transformers[7]. The technology applied by the CPA has the same output as the currently installed transformers. Furthermore, the CRGO silicon steel plate transformers are currently installed in the Kenyan national electricity grid.	OK, Confirmed by on-site observation and document review /5.14/ and equipment specifications /6.1/, /6.2/

JCI confirmed, through the discussion with KPLC during on-site visit /10.1/, that KPLC has expressed his sympathy with first-of its-kind nature of the project.
In addition, JCI has confirmed by the on-site-interview of the major transformer supplier to KPLC and by receiving confirmation letter from ERC (Energy Regulatory Commission, governmental department of Kenya), http://www.erc.go.ke/erc/licencing/?ContentID=9 /10.2/ confirming that the project activity is the first-of-its-kind in Kenya as the application to KPLC Power Grid.
JCI checked and confirmed that the referenced evidential documents and information /10.2/ and equipment specifications /6.1/, /6.2/ is publically available and credible.
JCI also, confirmed that the CPA-DD /1.6/ appropriately selected a fixed crediting period of 10 years with no option of renewal in Section A.9.2.
From the argument on above, the proposed project activity is the First-of-its-kind in the applicable geographical area Kenya complying with the Guidelines /4.14/.

JCI has validated and concluded that the proposed project activity was appropriately identified as the First-of-its-kind and is additional.

6.2 Start date of a PoA/CPA

1) PoA-DD start date

JCI validated and confirmed that 17 April 2012 of the start date in the version 1.0 of PoA-DD/1.5/, which is the date the CDM-PoA-DD is published for GSC (Global Stakeholder Consultation), is appropriate in accordance with "Guidelines for completing the programme design document form for CDM programme of activities", Version 04.0 /4.8/.

2) Specific CPA-DD start date

JCI validated and confirmed that 01 July 2015 of the start date in CPA001 is not prior to the PoA start date stated in the PoA-DD, in accordance with "Glossary of CDM Terms, Version 07.0, EB70, Annex 07".

JCI, also confirmed that the notification of the commencement of the project activity is not necessary and the prior consideration in not necessary to be taken into consideration according to the VVS /4.1/.

Timeline for major key milestones relevant to CDM PoA activities is summarized in Table IV-5 below.

[6] Selecting Energy Efficient Distribution Transformers (SEEDT): A Guide for Achieving Least-Cost Solutions, pp. 25.
[7] Energy Regulatory Commission, RE: Application for first of its kind letter for the installation of energy efficient transformers programme of activities, December 2012, Kenya.

Table IV-5 Major Events in the Timeline for the Project.

	Time	Event	Evidence used for cross reference
2011	April 1	CDM origination document with project timeline	"Overview of Key Events"
	September 30	Paper to Management Committee "Board decision on the application of CDM to the Project activity"	"Amorphous Distribution Transformers Research & Development"/5.1/
	November 1	Feasibility Summary Report, Carbon and Cost Model	"Carbon viability of the proposed amorphous transformers project by the Kenya Power"/5.14/
2012	January 2	Contract signed with CME(CPA001)	"CDM Master Agreement"(Confidential)
	March 21	Stakeholder consultation meeting in Nairobi	Meeting Minutes /12.3/
	April 17	Publication of the CPA001 for GSC on UNFCCC website	UNFCCC website
	June 6	Application for compliance letter received from National Environment Management Authority	"Not required to carry out an Environmental Impact Assessment(EIA)" /2.3/
	June 25	Issuance of Kenya's LoA	Kenya's LoA /2.1/
	August 15	Issuance of UK's LoA	UK's LoA/2.2/
2013	August 1	Tender issued for selection of consultant by KPLC	
2014	June 15	Contract with transformer consultant signed by KPLC	(Expected)
	October 15	Selection of energy efficient transformer supplier through tender process	(Expected)
2015	July 1	First installation of transformers **Starting date of CPA001**	(Expected)

6.3 Identification of alternatives as PoA-DD

The baseline scenario for IEET/CPA-001/KENYA/KPLC has been identified in accordance to guidelines stipulated by the approved baseline and monitoring methodology AM0067*"Methodology for installation of energy efficient transformers in a power distribution grid"* Version 02. In accordance with this methodology, the demonstration applies the latest version of the following tools:

- EB 70 Annex 9, "*Combined tool to identify the baseline scenario and demonstrate additionality"*, Version 05.0.0.
- EB 75 Annex 15, "*Tool to calculate the emission factor for an electricity system*", Version 04.0.0.

As per the requirements of the above tools, the latest versions of the following guidelines are also considered:

- EB 50 Annex 13, "*Guidelines for objective demonstration and assessment of barriers*", Version 01
- EB 69 Annex 7, "*Guidelines on additionality of first-of-its-kind project activities*", Version 02

Since this CPA has selected to demonstrate first-of-its-kind and there is only one alternative scenario left after the barrier analysis, the following steps have been applied (as per the "*Combined tool to*

identify the baseline scenario and demonstrate additionality" (Version 05.0.0) to identify the baseline scenario:

Step 0: Demonstration whether the proposed project activity is the first of-its-kind.
Step 1: Identification of alternative scenarios.
Step 2: Barrier analysis.
Step 3: Investment analysis
Step 4: Common practice analysis

Step 0: Demonstration whether the proposed project activity is the first-of-its-kind

According to the "*Combined tool to identify the baseline scenario and demonstrate additionality*", (Version 05.0.0) the project has the option to either demonstrate first of its kind or elect not to do so. This CPA chooses to apply first-of-its-kind.

Paragraph 12 of the "*Combined tool to identify the baseline scenario and demonstrate additionality*" Version 05.0.0 states that if the proposed project activity applies measure(s) that are listed in the definitions section of the tool, then the latest version of the "*Guidelines on additionality of first-of-its-kind project activities*" shall be applied. This CPA applies the measure listed in paragraph 9 (b) (ii) of the tool (switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies) and therefore will apply the "*Guidelines on additionality of first-of-its-kind project activities*" Version 02.

A proposed project activity is the first of its kind in the applicable geographic area (Kenya) if:

(a) The project is the first in the applicable geographical area that applies a technology that is different from technologies that are implemented by another project, which are able to deliver the same output and have started commercial operation in the applicable geographical area before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of the proposed project activity, whichever is earlier.

This is the first CPA in the applicable geographical area (Republic of Kenya) that applies amorphous transformer technologies that are 80% less No Load Loss than the transformer technologies that are currently installed (i.e. Cold Rolled Grain Oriented (CRGO) silicon steel plate transformers) in the national electricity grid of Kenya. There are currently no ongoing or proposed projects involving the installation of energy efficient transformers similar to the IEET proposed CPA in the national electricity grid of the Republic of Kenya. All transformers that are currently installed in the national electricity grid of Kenya use CRGO silicon steel plate core technology considered inefficient compared to the proposed IEET PoA transformers. The technology applied by the CPA has the same output as the currently installed transformers. Furthermore, the CRGO silicon steel plate transformers are currently installed in the Kenyan national electricity grid, and therefore have started commercial operation in Kenya before the PoA-DD was published for global stakeholder consultation (17 April, 2012).

JCI confirmed the demonstration of additionality complying with the Guideline of FOIK guidelines as shown in the Table IV-4.

Table IV-4 Additionality Check for the PoA complying with the FOIK Guidelines

FOIK Guidelines	Project implementation	Check Result by the PP	Check Result by JCI
Para.1 Applicable geographical area	In Kenya	OK, Para 1. is applicable	Confirmed by DDs and on-site assessment

FOIK Guidelines	Project implementation	Check Result by the PP	Check Result by JCI
Para.2 Measure	Switch of technology with or without change of energy source including energy efficiency improvement Energy efficiency improvements Applies amorphous transformer technologies	OK, Para 2. is applicable.	Confirmed by DDs and on-site assessment
Para.3 Output	Less No-load loss	OK, Para 3. is applicable.	Confirmed by DDs
Para.4 Different technologies	♦ Same output: Amorphous transformer technologies. The project transformer will deliver the same output. ♦ Differ by one of the following: (a) Differ by energy source: (b) Differ by Feed stock (c) Match to energy saving with the large-scale power capacity.	OK, Para 4. is applicable	Confirmed by DDS and on-site assessment
Para.5 (a) Identifica-tion of FOIK	♦ Applicable geographical area : Republic of Kenya	♦ OK, Kenya is identified as entire host country	Confirmed by DDS
	♦ Applied technology: amorphous transformer technologies. Energy efficient transformer that is 80% more energy efficient (based on NLL) and less no-load loss than the baseline technology that are different from currently installed (i.e. Cold Rolled Grain Oriented (CRGO) silicon steel plate transformers)	♦ OK, Applied technology: is more amorphous transformer which is different fromenergy efficient than existing transformer technology.	Confirmed by DDS and on-site assessment
	♦ Different from any other project: Any other project applying amorphous transformer similar to the one proposed under the PoA is not identified. Other CPAs under this project are not to be included in "Any other project", since those CPAs are identified as the projects after the start date of the project activities.	♦ OK, applied No other project is identified that can achieve 80% energy efficiency (based on NLL) applying amorphous transformer	Confirmed by DDS and on-site assessment
	♦ Identifying other technologies: Application of amorphous transformer that can reduce NLL by 80% is not identified in the national electricity grid of Kenya publicly available information.	♦ OK, Applied No projects with the transformer that can reduce NLL by 80% amorphous transformer can be identified in publically available information related to the national electricity grid of Kenya publicly available.	Confirmed by DDS and on-site assessment
Para.5 (b) Measures	♦ One or more of the measures: Switch of technology with or without change of energy source including energy efficiency improvement Switch of technology with energy saving is the measure.	OK, Para 5(b). is applicable	Confirmed by DDS and on-site assessment
Para.5 (c) Crediting period	♦ Crediting period: Maximum 10years with no option of renewal	OK, Para 5 (c). is applicable	Confirmed by the DDs

FOIK Guidelines	Project implementation	Check Result by the PP	Check Result by JCI
Conclusion	♦ Para.(1) ~(5) were checked as being applied.	OK FOIK is demonstrated by checking the Para (1)~(5)	Confirmed by DDS and on-site assessment

JCI concluded that Table IV-5 in the DDs shows appropriately the transformer technology for the PoA project activity.

Table IV-5 Technology Comparison

Definition	Items	Existing facility (Baseline transformer)	PoA project (Project transformer)	Difference
Type of good/ service	Goods/ Services	Transformer in distribution grid	Energy efficient transformer in distribution grid	Application of energy efficient transformer
Level of service	Voltage ratio, Capacity range	11/0.25kV, Single phase 15 to 1000 KVA	11/0.25kV, Single phase 15 to 1,000 KVA	No difference
		33/0.25kV, Single phase 15 to 1,000 KVA	33/0.25kV, Single phase 15 to 1,000 KVA	
		11/0.433kV, Three phase 15 to 1,000 KVA	11/0.433kV, Three phase 15 to 1,000 KVA	
		33/0.433kV, Three phase 15 to 1,000 KVA	33/0.433kV, Three phase 15 to 1,000 KVA	
Magnetic core material in transformer	Material	CRGO silicon steel plate	Amorphous metal	Low no load loss through application of Amorphous metal
Performance specifications	Techno-logy Specifica-tion	$NLL_{BL,k}$: base	$NLL_{PR,k}$: 80% lower	Low energy loss of transformer due to low NLL (no load loss). Difference between $NLL_{BL,k}$ & $NLL_{PR,k}$ will be used to estimate emission reductions.
		$LL_{BL,k}$: base	$LL_{PR,k} \leq LL_{BL,k}$	Difference between $LL_{BL,k}$ & $LL_{PR,k}$ will not be used to estimate emission reductions in accordance with the AM0067.
Compliance with certifications/ testing	IEC, National Standard	International Electrotechnical Commission (IEC) 60076 standard or relevant national standard	International Electrotechnical Commission (IEC) 60076 standard or relevant national standard	Electrical requirement is same.
Conclusion	-	Existing technology	New technology	Project technology is apparently different from the existing one

Official specifications and orders from KPLC, the owner of the first CPA and the sole manager of the Kenyan national electricity grid demonstrate that the utility has not purchased or installed transformers which have a similar or higher energy saving potential than the transformers to be implemented under the proposed CPA. Evaluation of no-load losses from official vendor /supplier

records shows that the proposed transformer technology is 80% less No Load Loss and more efficient than the technology of the baseline transformers.

Transformer Type		Baseline		Project	
kV	kVA	Average No-load losses $NLL_{aveg,k}$ (Watts)	Load losses $LL_{BL,k}$ (Watts)	No-load losses $NLL_{PR,k}$ (Watts)	Load losses $LL_{PR,k}$ (Watts)
11	15	43	264	9	238
	25	63	286	12	257
	50	98	534	20	481
	100	180	1108	36	997
	200	272	2380	54	2142
	315	433	2905	87	2615
	630	815	5110	163	4599
	1000	950	7034	190	6331

Transformer Type		Baseline		Project	
kV	kVA	Average No-load losses $NLL_{aveg,k}$ (Watts)	Load losses $LL_{BL,k}$ (Watts)	No-load losses $NLL_{PR,k}$ (Watts)	Load losses $LL_{PR,k}$ (Watts)
33	15	0	0	0	0
	25	82	315	12	284
	50	104	634	21	571
	100	199	940	40	846
	200	362	2465	72	2219
	315	528	3593	106	3234
	630	1161	4438	220	3994
	1000	1678	6703	290	6033

(b) The project implements one or more of the measures.

This CPA implements the measure listed in paragraph 2 (b) of the "*Guidelines on additionality of first-of-its-kind project activities*" Version 02, 'switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies'.

(c) The project participants selected a crediting period for the project activity that is 'a maximum of 10 years with no option of renewal'

This CPA elects to demonstrate first-of-its-kind and therefore will have a maximum crediting period of 10 years.

Criteria a, b and c are met and therefore this CPA is the first of its kind in the applicable geographic area (Republic of Kenya).

Outcome of Step 0:

Conclusion I: The proposed project activity is the First-of-its-Kind

Step 1: Identification of alternative scenarios

This step serves to identify all alternative scenarios to the proposed CDM project activity(s) which can be the baseline scenario.

Step 1a: Define alternative scenarios to the proposed CDM project activity

In accordance with the approved baseline and monitoring methodology AM0067 "*Methodology for installation of energy efficient transformers in a power distribution grid*" (Version 02), the project participant has chosen to use the list of credible and plausible alternative scenarios for the installation and replacement of transformers. These alternative scenarios as per the Methodology are:

- Replacement or installation of transformers adopting a more efficient technology other than the technologies of the PoA;
- Continuation of current practice. Replacement or installation of transformer with the most commonly used transformers in the Kenyan electricity grid;
- Replacement or installation of transformers as per new performance levels enforced by regulation; or
- Replacement or installation of transformers adopting the PoA technologies without CDM benefits.

Outcome of Step 1a:

List of plausible alternatives scenarios to the project activity are:

1. Replacement or installation of transformers adopting a more efficient technology other than the technologies of the PoA;
2. Continuation of current practice. Replacement or installation of transformer with the most commonly used transformers in the Kenyan electricity grid;
3. Replacement or installation of transformers as per new performance levels enforced by regulation; or
4. Replacement or installation of transformers adopting the PoA technologies without CDM benefits.

Step 1b: Consistency with mandatory applicable laws and regulations

Alternatives 1, 2 and 4 listed in Step 1a above are consistent with mandatory applicable laws and regulations, given there are no current or proposed legislative requirements in Kenya that enforce the distribution of improved transformer technology. Alternative 3 is considered as 'noncompliant' as there are no mandatory laws requiring improved efficiency in transformer technologies.

Outcome of Step 1b:

Three alternatives to the project activity that are consistent with mandatory laws and regulations are identified, these being:

1. Replacement or installation of transformers adopting a more efficient technology other than the technologies of the PoA;
2. Continuation of current practice. Replacement or installation of transformer with the most commonly used transformers in the Kenyan electricity grid;
4. Replacement or installation of transformers adopting the PoA technologies without CDM benefits.

Step 2: Barrier analysis

This step serves to identify barriers and to assess which alternative scenarios are prevented by these barriers. Please note that the latest approved version of the "*Guidelines for objective demonstration and assessment of barriers*" shall be taken into account when applying this step.

Step 2a: Identify barriers that would prevent the implementation of alternative scenarios

Investment barriers

Kenya's national energy policy has a number of broad objectives including ensuring the adequate, reliable, cost effective and affordable supply of energy to meet its development needs. Promotion of

energy efficiency and conservation is one of the Government's key energy policies. Kenya Vision 2030 has also recognised the need of increasing energy efficiency in order to reduce Kenya's higher energy cost.

Kenya is struggling to meet its energy requirements due to lack of sufficient foreign exchange caused in part by absence of donor inflows in the 90s. Kenya did not make adequate investment in the energy sector particularly in the expansion of generation and transmission facilities.

More broadly, scaling-up investment in energy efficiency is essential to achieving significant reductions in energy related emissions. However, despite energy efficiency's recognised advantages as an investment with immense climate change mitigation benefits, most of energy efficiency opportunities remain unrealised due largely to the significant "investment gap" that exists between the theoretical returns that energy efficiency investments can provide, and the limited capital that is available to make those investments.

The above identifed "investment gap" is compounded in Kenya as access to finance has been identified as one of the barriers in Kenya for the adoption of efficient technologies and cleaner energy options. A study conducted by the United Nations Environment Programme (UNEP) suggests promoting access to innovative financing mechanisms to remove such barriers.

As a result of the above circumstances, there has been a lack of investment in essential improvements to the Kenyan electricity system, with only lowest cost incremental investments being undertaken. This has led the national power utility to be challenged in meeting the country's growing electricity demand.

Compounding the above situation regarding investments gaps and growing demand, energy efficient upgrades require increased upfront capital investment when compared to 'like for like' replacement of electricity infrastructure. For example, the purchase cost of amorphous-type transformers is approximately 1.5 times higher than that of standard-issue silicon steel plate transformers.

Economic evaluation of losses recognizes that transformers will have energy losses over their operating lifetime and the losses will cost money over that time. This economic analysis makes a determination of the cost of the future losses expressed in today's dollars to enable a comparison of alternative products. Considering loss evaluation when purchasing transformers will economically disadvantage the cheaper, less efficient technology reducing the potential impact of this barrier.

Technological barriers

Currently there are no 'energy efficient' transformers (as proposed to be deployed under this PoA) operating in Kenya.

Standard and/or current equipment and materials (e.g. transformers, conductors, capacitors, substation diameters and bays etc.) are recommended for electricity transmission grid infrastructural development for reasons that:

- They offer economic and monetary value due to bulk purchase
- These equipment and materials are easily stocked for replacement in cases of failure and redundancy: standardization allows reduction of the amount of spare parts.
- It offers ease in operation and maintenance owing to its uniformity and commonality.
- It makes it easier for the utility to train its technical staff on the standard equipment
- It is easier and cheaper to repair and service baseline transformers using parts recovered from retired equipment. Power utilities therefore opt to buy standard technologies to avoid meeting the cost of new parts associated with new technologies.

Given the above technology barriers, historically in Kenya replacing 'like for like' transformers (alternative 2) has been common practice as it proposes a least up-front cost, familiar and lower risk option.

The transformer technology types to be implemented by this PoA are considered to be the most efficient available given that more efficient technologies such as super-conductive transformers have not yet been industrially developed.

Prevailing practice barriers

Energy efficiency continues to be a peripheral issue in the overall energy sector planning and development in Africa. Experiences so far shows that the adoption of energy efficiency is inhibited by barriers including lack of appreciation of the benefits, initial capital requirements, resistance to change, absence of policy and regulatory frameworks, and subsidized energy costs.

As stated previously, currently there are no 'energy efficient' transformers (as proposed to be deployed under this PoA) operating in Kenya. Therefore historically the currently used less efficient transformer technology has been preferred. To date no similar project has previously been implemented in the Kenyan electricity grid. As stated previously considering loss evaluation when purchasing transformers will to a degree reduce the potential impact of this barrier.

Outcome of Step 2a:

List of barriers that may prevent one of more alternative scenarios to occur are as follows:

- Investment Barrier
- Technological Barrier
- Prevailing practice barrier

Step 2b: Eliminate alternative scenarios which are prevented by the identified barriers

This step serves to identify which alternative scenarios the identified barriers prevent.

Scenarios	Prevented by identified barriers
1. *Replacement or installation of transformers adopting a more efficient technology other than the technologies of the PoA;* There are no transformers technologically available which are more efficient than the proposed transformers in this PoA.	Yes
2. *Continuation of current practice. Replacement or installation of transformer with the most commonly used transformers in the Kenyan electricity grid;* Replacing transformers with 'like for like' technology is the least upfront cost and lowest risk investment option. As noted in the barriers discussion this is due to; these equipment being easily stocked for replacement in cases of failure and redundancy; they offer ease in operation and maintenance owing to its uniformity and commonality; and the utility has experience with operating this standard equipment. As such this option would not be prevented by the barriers presented above.	No

4. *Replacement or installation of transformers adopting the PoA technologies without CDM benefits.* This scenario is not prevented. Even though adopting a more efficient technology will require increased upfront investment and presents a potential perception of a higher risk of equipment underperformance (due to lack of common practice experience in operating the equipment), These increased upfront and on-going costs may be alleviated by the consideration of loss evaluation in the investment decision. *Prima facie* the barriers identified may not prevent this scenario, an investment analysis is required to determine impact of consideration of loss evaluation.	No

Outcome of Step 2b:

Scenario 2 (Continuation of current practice. Replacement or installation of transformer with the most commonly used transformers in the Kenyan electricity grid) and Scenario 4 (Replacement or installation of transformers adopting the PoA technologies without CDM benefits) are not prevented by the identified barriers.

Outcome of Step 2:

There is more than one alternative scenario (scenario 2 & 4) that is not prevented by any barrier. These scenarios include the proposed project activity without being registered as a CDM project. This CPA is considered to be first-of-its-kind, and therefore the proposed project activity without CDM can be excluded from the alternative scenarios as per the guidance of the "*Combined tool to identify the baseline scenario and demonstrate additionality*" Version 05.0.0. This leaves only scenario 2 (continuation of current practice), and therefore it can be considered the baseline scenario.

Given that this CPA has been demonstrated to be first-of-its-kind, it is considered at this stage to be additional by both the "*Guidelines on additionality of first-of-its-kind project activities*", Version 02 and the "*Combined tool to identify the baseline scenario and demonstrate additionality*" Version 05.0.0.

Step 3: Investment analysis:

Not mandatory to conduct as per the tool

Step 4: Common practice analysis:

Not mandatory to conduct as per the tool

Conclusion

The identification of alternate scenarios indicates two relevant, plausible alternatives to the project activity that are consistent with mandatory laws and regulations. As the proposed project activity is considered first-of-its-kind however, the proposed project activity without CDM can be excluded as per the "*Combined tool to identify the baseline scenario and demonstrate additionality*" Version 05.0.0. Therefore, scenario 2 (continuation of current practice) is considered to be the baseline scenario.

Given that each CPA has been demonstrated to be first-of-its-kind, it is also considered to be additional by the "*Guidelines on additionality of first-of-its-kind project activities*", Version 02 and the "*Combined tool to identify the baseline scenario and demonstrate additionality*" Version 05.0.0. And Step 3 and Step 4 of the tool are not required to demonstrate. Only one CPA per host country will be eligible to demonstrate FOIK under this PoA.

JCI confirmed and validated that scenario 2 (continuation of current practice) is considered to be the baseline scenario. And also, JCI confirmed and validated that the technology applied to the PoA

activity was demonstrated as first-of-its-kind in the Republic of Kenya and then the PoA was additional.

7. Eligibility criteria for inclusion of a CPA in the PoA

JCI assessed the specified eligibility criteria in the PoA to determine those criteria are sufficient to ensure that all CPAs would comply with CDM requirements applicable to the PoA.

The CME demonstrated the specified criteria for the inclusion of CPA in the section B.2. of the PoA-DD /1.5/ , as shown below Table IV-6

JCI assessed the demonstration by the CME about the criteria, and filled up DOE's justification at the right column of the same Table IV-6 through the provisions Version 01 of "Standard for the Development of Eligibility Criteria for the Inclusion of a Project Activity as a CPA under the PoA[18]" and must be met by a CPA applying for inclusion in IEETCDM-PoA: *Methodological tool "Combined tool to identify the baseline scenario and demonstrate additionality", Version 05.0.0, EB70 Annex098 /4.3/and AM0067 "Installation of Energy Efficient Transformers in a Power Distribution Grid",/4.2/.*

1) Eligibility criteria in PoA-DD level

The defined eligibility criteria in the PoA-DD/1.5/ can be verified in accordance with "*Standard for demonstration of additionality, development of eligibility criteria of multiple methodologies for programme of activity*" /4.9/.
The verified result is shown in Table IV-6.

Table IV-6 Check for Eligibility criteria for inclusion of a CPA in generic CPA-DD in PoA

	Eligibility criteria for inclusion by the Standard	Eligibility criteria noted by CME in Generic CPA-DD of PoA-DD	JCI Check result
1	<Standard Para.16.(a)> The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA	The geographic boundary of the CPA, including anytime induced boundary, is unambiguously identified and consistent with the geographic boundary set in the PoA.	OK. Confirmed the appropriateness of the criteria in the PoA-DD
2	<Standard Para.16. (b) > Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo)	The CPA operator must demonstrate that double counting does not occur with the particular CPA.	OK. Confirmed the "Procedure to avoid double counting" and statement of CME are appropriate to avoid double counting. Refer to Table IV-8 below
3	<Standard Para.16. (c)> The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications	The CPA involves installation of transformers to new sites or to replace existing less efficient baseline transformers on the distribution electricity grid and shall comply with following criteria: -The transformer shall be having capacity ranging from 15 kVA to 1000 kVA having transformation ratio of 11/0.25kV (single phase), 11/0.433kV (three phase), 33/0.25kV (single phase) and 33/0.433kV (three phase). -Based on the evaluation of no-load losses, the transformer shall be efficient than the baseline transformers -The transformer shall comply with the International Electrotechnical Commission (IEC) 60076 standard or	OK. Confirmed the appropriateness of the criteria in the PoA-DD The detail criteria are appropriately derived from and consistent with Table IV-7.

[18]http://cdm.unfccc.int/Reference/Standards/meth/meth_stan02.pdf

	Eligibility criteria for inclusion by the Standard	Eligibility criteria noted by CME in Generic CPA-DD of PoA-DD	JCI Check result
		relevant national standard -Load loss of project transformer should not be more than load loss of baseline transformer -Efficient transformer with amorphous core material	
4	<Standard Para.16. (d) > Conditions to check the start date of the CPA through documentary evidence	The start date of the CPA is not before the start date of the PoA i.e. 17/04/2012, the on which the CDM PoA DD was published for global stakeholder consultation. This may be the date when the first procurement contract is signed or the date when installation of transformers starts.	OK. Confirmed the appropriateness of the criteria in the PoA-DD
5	<Standard Para.16. (e)> Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs	Each proposed CPA follows the baseline and monitoring methodology AM0067, Version 02.	OK. Confirmed the appropriateness of the criteria in the PoA-DD
6	<Standard Para.16. (f) > The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section A above	The CPA meets the requirements pertaining to the demonstration of additionality as per section B.1 of the PoA-DD.	OK. Confirmed that this CPA has elected to demonstrate first-of-its-kind and there is only one alternative scenario left after the barrier analysis, the following steps have been applied (as per EB 69 Annex 7, "*Guidelines on additionality of first-of-its-kind project activities*", Version 02*)*
7	<Standard Para.16. (g)> The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis	Transformers to be installed are compliant with AM0067/Version 02 i.e. Transformers installed by CPAs under the PoA will: • Comply with national / international QA/QC standards. This shall be demonstrated through certification based on test conducted using relevant national/international testing standards from an accredited entity/government recognized entity. The certification report shall include information on the measured performance levels for load losses and no-load losses in various operational conditions and in addition, the associated uncertainty; • Be new equipment and not transferred from other parts of the distribution grid or from another distribution grid. It should be noted that CPAs to be included do not need to undertake local stakeholder consultation and Environmental Impact Assessment as they are conducted at a PoA level.	OK. Confirmed that transformers to be installed are compliant with AM0067/Version 02 i.e. Transformers installed by CPAs under the PoA will ; • Comply with national / international QA/QC standards. This shall be demonstrated through certification based on test conducted using relevant national/international testing standards from an accredited entity/government recognized entity. The certification report shall include information on the measured performance levels for load losses and no-load losses in various operational conditions and in addition, the associated uncertainty; • Be new equipment and not transferred from other parts of the distribution grid or from another distribution grid. Confirmed the appropriateness of the criteria in the PoA-DD and justified the following supporting documents; • Confirmation letter from ERC (governmental department of Kenya) • Stakeholder consultation report • Other credible documents (1) Confirmed the environmental analysis in Section E. of PoA-DD

	Eligibility criteria for inclusion by the Standard	Eligibility criteria noted by CME in Generic CPA-DD of PoA-DD	JCI Check result
			that EIA is not required for CPA appropriately. (2) Confirmed the local stakeholder consultation in Section F. of PoA-DD that the local stakeholder consultation has been appropriately conducted. And also it was confirmed at the on-site visit.
8	<Standard Para.16. (h) > Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance;	No ODA will be diverted as a result of the CPA.	OK. Confirmed the appropriateness of the criteria in the PoA-DD
9	<Standard Para.16. (i)> Where applicable, target group (e.g. domestic/commercial/ industrial, rural/urban, grid-connected/off-grid) and distribution mechanisms (e.g. direct installation)	The transformers that the CPA will implement or replace are those located between the distribution substation and home.	OK. Confirmed the appropriateness of the criteria in the PoA-DD
10	<Standard Para.16. (j)> Where applicable, the conditions related to sampling requirements for a PoA in accordance with the "Standard for sampling and surveys for CDM project activities and program of activities"	Not applicable for the Proposed PoA	OK. Confirmed as N/A
11	<Standard Para.16. (k)> Where applicable, the conditions that ensure that every CPA (in aggregate if it comprises of independent sub units) meets the small-scale or microscale threshold and remains within those thresholds throughout the crediting period of the CPA	Not applicable for the Proposed PoA	OK. Confirmed as N/A
12	<Standard Para.16. (l) > Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale or microscale project categories	Not applicable for the Proposed PoA	OK. Confirmed as N/A
13	<(m) Additional criteria developed by CME> Formal procedure of review prior to submission for inclusion	The monitoring plan of the CPA is consistent with the monitoring plan established in Section B.7.1. of Generic CPA-DD of the IEET CDM-POA-DD.	OK. Confirmed the appropriateness of the criteria in the PoA-DD
14	<(m) Additional criteria developed by CME> Legal conditions pertaining to the ownership and transfer of Emission Reductions	Each CPA should monitor and collect appropriate monitoring data as outlined in the PoA-DD and agree to provide the information to the CME.	OK. Confirmed the appropriateness of the criteria in the PoA-DD
15	<(m) Additional criteria developed by CME> Formal procedure of review prior to submission for inclusion	The CME approves the participation of the CPA in the PoA.	OK. Confirmed the appropriateness of the criteria in the PoA-DD
16	<(m) Additional criteria developed by CME> Formal procedure of review prior to submission for inclusion	Based on the evaluation of no-load losses, the CPA should apply amorphous transformer technologies that are more efficient than the transformer technologies that are currently installed in the national electricity grid of Kenya.	OK. Confirmed the appropriateness of the criteria in the PoA-DD

	Eligibility criteria for inclusion by the Standard	Eligibility criteria noted by CME in Generic CPA-DD of PoA-DD	JCI Check result
17	<(m) Additional criteria developed by CME> Formal procedure of review prior to submission for inclusion	The CPA shall be the first in the applicable geographical area that applies the transformer technologies that is different* from transformer technologies that are implemented by any other project including other CPA under this PoA, which are able to deliver the same output and have started commercial operation in the applicable geographical area before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of the proposed project activity, whichever is earlier.	OK. Confirmed the appropriateness of the criteria in the PoA-DD
18	<(m) Additional criteria developed by CME> Formal procedure of review prior to submission for inclusion	The crediting period of the CPAs will be a maximum of 10 years with no option of renewal	OK. Confirmed the appropriateness of the criteria in the PoA-DD

*The CPA transformer will be having following characteristics:

Table IV-7 The CPA transformer characteristics

Definition	Items	Existing facility	PoA project	Difference
Type of good/ service	Goods/ Services	Transformer in distribution grid	Energy efficient transformer in distribution grid	Application of energy efficient transformer
Level of service	Voltage ratio, Capacity range	11/0.25kV, Single phase 15 to 1000 KVA	11/0.25kV, Single phase 15 to 1,000 KVA	No difference
		33/0.25kV, Single phase 15 to 1,000 KVA	33/0.25kV, Single phase 15 to 1,000 KVA	
		11/0.433kV, Three phase 15 to 1,000 KVA	11/0.433kV, Three phase 15 to 1,000 KVA	
		33/0.433kV, Three phase 15 to 1,000 KVA	33/0.433kV, Three phase 15 to 1,000 KVA	
Magnetic core material in transformer	Material	CRGO silicon steel plate	Amorphous metal	Low no load loss through application of Amorphous metal
Performance specifications	Techno-logy Specifica-tion	$NLL_{BL,k}$: base	$NLL_{PR,k}$: 80% lower	Low energy loss of transformer due to low NLL (no load loss). Difference between $NLL_{BL,k}$ & $NLL_{PR,k}$ will be used to estimate emission reductions.
		$LL_{BL,k}$: base	$LL_{PR,k} \leq LL_{BL,k}$	Difference between $LL_{BL,k}$ & $LL_{PR,k}$ will not be used to estimate emission reductions in accordance with the AM0067.
Compliance with certifications/ testing	IEC, National Standard	International Electrotechnical Commission (IEC) 60076 standard or relevant national standard	International Electrotechnical Commission (IEC) 60076 standard or relevant national standard	Electrical requirement is same.

Definition	Items	Existing facility	PoA project	Difference
Conclusion	-	Existing technology	New technology	Project technology is apparently different from the existing one

JCI checked whether the procedure to avoid double-counting which is developed in Table IV-8 and settled as the Criteria 2 in the Section B.6 of Generic CPA-DD in the PoA-DD is appropriate or not. The CME has submitted the 'CPA Inclusion Management System (CPA-IMS)' which stipulated the procedures to avoid doble counting /11.2/.

The check results are summurized in Table IV-8 below.

Table IV-8 Check for Procedure to avoid double-counting

Eligibility criteria	Conformance	JCI check result
Eligibility Criteria 2 in the PoA-DD The CPA operator must demonstrate that double counting does not occur with the particular CPA.	Each CPA will follow the procedures established by the CME to avoid double accounting and comply therewith. The CME will implement a system to avoid double counting of emission reductions. This system will avoid the situation where a new CPA that has been already registered either as a CDM project activity, or as a CPA of another PoA, is included under the PoA. In addition, to avoid double counting each CPA should demonstrate that they can be uniquely identified by location (Country/City/Line + Serial number of transformer)	OK, Criteria are appropriate. And the detail procedure is stipulated in the CPA Inclusion Management System (CPA-IMS) /11.2/ as below.

	Management system of CME to ensure the eligibility criteria for inclusion /11.2/	Criteria	Source for confirmation	JCI check result
1.	No similar CPA already submitted as CPA under another PoA or CDM project a. Research on UNFCCC's database b. Inquiry with the Host country DNA	If "False", the proposed CPA is not eligible to the PoA	a. Programme of Activities and CDM projects registries (UNFCCC) b. DNA projects/ PoA portfolio	OK, Criteria is appropriate
2.	The CPA implementer's participation to the PoA is voluntary and the proposed CPA is not registered or under validation under the Clean Development Mechanism of the UNFCCC or any voluntary scheme as a single project activity or as a component activity under another program.	If "False", the proposed CPA is not eligible to the PoA	Confirmation by CME review (project assessment and/or interviews)	OK, Criteria is appropriate
3.	The proposed CPA is uniquely identified and defined in an unambiguous manner by amongst other aspects providing geographic information.	If "False", the proposed CPA is not eligible to the PoA	To avoid double counting each CPA should demonstrate that they can be uniquely identified by location (Country/City/Line + Serial number of transformer)	OK, Criteria is appropriate

Thus, JCI validated and confirmed that the eligibility criteria are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA.

JCI assessed that the competencies of the CME to check the features of potential CPAs and ensure that each CPA meets all requirements and eligibility criteria before inclusion in the registered PoA.

2) Demonstration of eligibility for a CPA001

JCI checked and confirmed whether the demonstration of eligibility for CPA001 is appropriate or not. The check results are summurized in Table IV-9 below.

Table IV-9 Check for Demonstration of eligibility for a CPA001

	Eligibility criteria developed in generic CPA-DD in POA-DD	Applicability	Mean of proof / Evidence / Document	JCI check result
1	The geographic boundary of the CPA, including anytime induced boundary, is unambiguously identified and consistent with the geographic boundary set in the PoA.	☒ Yes	Yes. The geographical boundary of IEET/CPA001/KENYA/KPLC is the Republic of Kenya	OK, Confirmed by the agreement /8.1/
2	The CPA operator must demonstrate that double counting does not occur with the particular CPA.	☒ Yes	Yes. KPLC has a Management Information System. In the MIS System, the natural sequence number of each CPA will be distinct and uniquely identified to avoid double counting. In addition, to avoid double counting each transformer will be uniquely identified by location (Country/City/Line + Serial number).	OK, Confirmed by the agreement /8.1/
3	The CPA involves installation of transformers to new sites or to replace existing less efficient baseline transformers on the distribution electricity grid and shall comply with following criteria: - The transformer shall be having capacity ranging from 15 kVA to 1000 kVA having transformation ratio of 11/0.25kV (single phase), 11/0.433 kV (three phase), 33/0.25kV (single phase) and 33/0.433kV (three phase). - Based on the evaluation of no-load losses, the transformer shall be more efficient than the baseline transformers - The transformer shall comply with the International Electrotechnical Commission (IEC) 60076 standard or relevant national standard - Load loss of project transformer should not be more than load loss of baseline transformer - Efficient transformer with amorphous core material	☒ Yes	Yes. This CPA involves installation of energy efficient transformers on new sites as well as replacing conventional, less efficient, baseline transformers in the Kenyan distribution grid. The CPA complies with all criteria described as described in the eligibility criteria 3. Please refer to the table A.3.1.	OK, Confirmed by the documents /6.1//6.2//6.3/
4	The start date of the CPA is not before the start date of the PoA i.e. 17/04/2012, the on which the CDM PoA DD was published for global stakeholder consultation. This may be the date when the first procurement contract is signed or the date when installation of transformers starts.	☒ Yes	Yes. The start date of this CPA is 01/07/2013. This is the expected date of first installation of project transformers.	OK, Confirmed by the agreement /8.1/

	Eligibility criteria developed in generic CPA-DD in POA-DD	Applicability	Mean of proof / Evidence / Document	JCI check result
5	Each proposed CPA follows the baseline and monitoring methodology AM0067, Version 02.	☒ Yes	Yes. The design of this CPA DD follows the baseline and monitoring methodology AM0067, Version 02.	OK, Criteria and methodology are appropriately applied in CPA001.
6	The CPA meets the requirements pertaining to the demonstration of additionality as per section B.1 of the PoA-DD.	☒ Yes	Yes. The CME has checked the information and evidence provided by the KPLC and confirmed that IEET/CPA-001/KENYA/ KPLC is additional. This CPA has demonstrated that is the first-of-its-kind and complies with the demonstration of additionality as per section B.1 of the PoA-DD.	OK, Confirmed by the documents /9.1//9.2/
7	Transformers to be installed are compliant with AM0067/Version 02 i.e. Transformers installed by CPAs under the PoA will: • Comply with national / international QA/QC standards. This shall be demonstrated through certification based on test conducted using relevant national/international testing standards from an accredited entity/government recognized entity. The certification report shall include information on the measured performance levels for load losses and no-load losses in various operational conditions and in addition, the associated uncertainty; • Be new equipment and not transferred from other parts of the distribution grid or from another distribution grid. It should be noted that CPAs to be included do not need to undertake local stakeholder consultation and Environmental Impact Assessment as they are conducted at a PoA level.	☒ Yes	Yes. Transformers to be installed are compliant with AM0067/Version 02 includes the followings; ・Comply with national / international QA/QC standards. This shall be demonstrated through certification based on test conducted using relevant national/international testing standards from an accredited entity/government recognized entity. The certification report shall include information on the measured performance levels for load losses and no-load losses in various operational conditions and in addition, the associated uncertainty; ・Be new equipment and not transferred from other parts of the distribution grid or from another distribution grid. Environmental analysis of IEETCDM-PoA have been done at PoA level and stated in section E of the PoA-DD. And also, the stakeholder consultation have been done at PoA level and stated in section F of the PoA-DD.	OK, Confirmed by the evidences /12.1/, /12.2/, /12.3/, /12.4/
8	No ODA will be diverted as a result of the CPA.	☒ Yes	Yes. There will be no ODA for this CPA.	OK, Confirmed by the agreement /8.1/
9	The transformers that the CPA will implement or replace are those located between the distribution substation and home.	☒ Yes	Yes. This CPA will implement or replace transformers those are located between the distribution substation and home.	OK, Confirmed by the report /2.3/
10	The monitoring plan of the CPA is consistent with the monitoring plan established in Section Appendix 5 of the IEET CDM-POA-DD	☒ Yes	Yes, The CPA must demonstrate that it complies with the monitoring plan outlined in Appendix 5 of the IEETCDM – PoA-DD.	OK, Confirmed by the Section A.11 of CPA001.
11	Each CPA Implementer should monitor and collect appropriate monitoring data as outlined in the PoA-DD and agree to provide the information to the CME.	☒ Yes	Yes, An agreement will be signed between the CPA Implementer and the CME, which will ensure that each CPA implementer will monitor and collect the required monitoring data and provide the information to the CME.	OK, Criteria is appropriately applied in CPA001.
12	The CME approves the participation of the CPA in the PoA.	☒ Yes	Yes. The CME has approved the participation of this CPA in the PoA.	OK, Criteria is appropriately applied in CPA001.

	Eligibility criteria developed in generic CPA-DD in POA-DD	Applicability	Mean of proof / Evidence / Document	JCI check result
13	Based on the evaluation of no-load losses, the CPA should apply amorphous transformer technologies that are more efficient than the transformer technologies that are currently installed in the national electricity grid of Kenya.	☒ Yes	Yes, The CPA implementer will provide evidence that the CPA will apply amorphous transformer technologies that are more efficient than the transformer technologies that are currently installed in the national electricity grid of Kenya	OK, Criteria is appropriately applied in CPA001.
14.	The CPA shall be the first in the applicable geographical area that applies the transformer technology that is different* from transformer technologies that are implemented by any other project including other CPA under this PoA , which are able to deliver the same output and have started commercial operation in the applicable geographical area before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of the proposed project activity, whichever is earlier	☒ Yes	Yes. The CPA is the first in the applicable geographical area that applies transformer technology that is different (as stated in the Table IV-10 below) from transformer technologies that are implemented by any other project including other CPA under this PoA, which are able to deliver the same output and have started commercial operation in the applicable geographical area before the project design document (CDM-PDD) is published for global stakeholder consultation.	OK, Criteria and guideline are appropriately applied in CPA001.
15.	The crediting period of the CPAs will be a maximum of 10 years with no option of renewal	☒ Yes	Yes. The crediting period of this CPA will be 10 years.	OK, Criteria is appropriately applied in CPA001.

*The CPA transformer will need to have following characteristics in the Table IV-10.

Table IV-10 Technology difference between existing and project transformer

Definition	Items	Existing facility	PoA project	Difference
Type of good/ service	Goods/ Services	Transformer in distribution grid	Energy efficient transformer in distribution grid	Application of energy efficient transformer
Level of service	Voltage ratio, Capacity range	11/0.25kV, Single phase 15 to 1000 KVA	11/0.25kV, Single phase 15 to 1,000 KVA	No difference
		33/0.25kV, Single phase 15 to 1,000 KVA	33/0.25kV, Single phase 15 to 1,000 KVA	
		11/0.433kV, Three phase 15 to 1,000 KVA	11/0.433kV, Three phase 15 to 1,000 KVA	
		33/0.433kV, Three phase 15 to 1,000 KVA	33/0.433kV, Three phase 15 to 1,000 KVA	
Magnetic core material in transformer	Material	CRGO silicon steel plate	Amorphous metal	Low no load loss through application of Amorphous metal
Performance specifications	Techno-logy Specifica-tion	$NLL_{BL,k}$: base	$NLL_{PR,k}$: 80% lower	Low energy loss of transformer due to low NLL (no load loss). Difference between $NLL_{BL,k}$ & $NLL_{PR,k}$ will be used to estimate emission reductions.
		$LL_{BL,k}$: base	$LL_{PR,k} \leq LL_{BL,k}$	Difference between $LL_{BL,k}$ & $LL_{PR,k}$ will not be used to estimate emission reductions in accordance with the AM0067.
Compliance with	IEC, National	International Electrotechnical	International Electrotechnical	Electrical requirement is same.

Definition	Items	Existing facility	PoA project	Difference
certifications/ testing	Standard	Commission (IEC) 60076 standard or relevant national standard	Commission (IEC) 60076 standard or relevant national standard	
Conclusion	-	Existing technology	New technology	Project technology is apparently different from the existing one

Thus, JCI has validated and concluded that the eligibility criteria developed in PoA-DD are appropriately applied in the CPA001 as the 1st specific CPA-DD.

8. Application of the selected baseline and monitoring methodology

8.1 Applicability of the selected baseline and monitoring methodology to the project activity

JCI has confirmed that application of "AM0067: Installation of Energy Efficient Transformers (IEET)"/4.1/ to the project activity is appropriate by the following steps and viewpoints;

1) Document Review

JCI has reviewed the Technical Reports /5.1/~/5.13/, /5.1/, /6.1/~/6.3/, /7.1/~ /7.2/, /8.1, /8.2/, /11.1//~/11.3/ of the proposed project, and related documentation and facilities confirmed the necessity and requirement for the implementation of the project activity.

2) On-site visit dated 29 May - 01 June 2012

JCI has confirmed that the newly Installation of Energy Efficient Transformers (IEET) which will be connected to the national grid in boundary of Kenya as CPA001 by meeting with the PP during the on-site visit.

JCI has also confirmed that the plant is designed with national laws and regulations.

As shown in B.2 of Part II. in the PoA-DD/1.5/, the applicability is sufficiently demonstrated that the project activity meets with the applicable conditions specified by the methodology AM0067 /4.2/.

The methodology is applicable to the following project activities

1) The CPA is planned with Installation of Energy Efficient Transformers (IEET) which connects to the national grid in boundary of Kenya.
2) Replacement of existing lower-efficiency transformers with higher efficiency transformers in an existing distribution grid; or
3) Install new high efficiency transformers in the new areas covered by expansion of the distribution grid where in the absence of the project, lower efficiency transformers would have been installed.

The following conditions apply to the methodology:

(a) Emission reductions due to reduction in no-load losses alone are claimed;
(b) Installation of transformers within the distribution grid is governed by performance levels established by local or national regulation, which define maximum permissible load losses and no-load losses;
(c) Load losses, at rated load, of the transformers implemented under the project activity are demonstrated to be equal or lower than the load losses in transformers that would have been installed in absence of the project activity;
(d) The transformers installed in the project activity comply with national/international QA/QC standards. This shall be demonstrated through certification based on test conducted using relevant national/international testing standards from an accredited entity/government recognized entity. The certification report shall include information on the measured performance levels for load losses and no-load losses in various operational conditions and in addition, the associated uncertainty;
(e) Project proponent implements a system to ensure that the replaced transformers are not used in other parts of the distribution grid or in another distribution grid;

(f) A complete list of co-ordinates uniquely identifying each transformer installed under the project activity has not prepared by the Project Participants before CDM registration request due to huge number of project transformers and delay of commencement of CPA-001. The project start date is 01/07/2015). JCI has accepted it under the condition of submission at verification stage;

(g) Data on total number and type of transformers installed over the last three years previous the project implementation is available.

Further notes on applicability of the methodology;

Note 1:

- To demonstrate applicability condition (c) above, project proponents shall show, for each type of transformer installed, that the rated load losses for project activity transformers are lower than or equal to load losses of baseline transformer load losses.

Note 2:

Transformers can be installed at any time during the crediting period in the project activity area, but they will only be eligible to obtain CERs from the beginning of the subsequent monitoring period. Project participants shall provide the following information related with each of the installed transformers under the project activity:

- Date of installation;
- Exact localization of the transformer (providing serial number and co-ordinates of the location);
- Technical data of each transformer, for example transformation ratio, capacity, etc.;
- Load losses and no-load losses provided by the manufacturer

JCI has validated and concluded that applicability of methodology AM0067 /4.2/ to the project activity is appropriately demonstrated and justified in the PoA-DD /1.5/, CPA-DD /1.6/ as summarized in Table IV-11 below.

Table IV-11 Applicability Check for the CPA Specification regarding AM0067 Conditions.

No	Applicability conditions of the methodology	CPA specification	Check Result
1	Replacement of existing lower-efficiency transformers with higher efficiency transformers in an existing distribution grid	IEET/CPA001/KENYA/KPLC involves replacement of existing transformers with higher efficiency transformers in the electricity distribution grid of Kenya.	OK Confirmed in accordance with the AM0067
2	Install new high efficiency transformers in the new areas covered by expansion of the distribution grid where in the absence of the project, lower efficiency transformers would have been installed.	IEET/CPA001/KENYA/KPLC will install new high efficiency transformers in the new areas covered by expansion of the distribution grid where in the absence of the project, lower efficiency transformers would have been installed.	OK By adapting loss-evaluation on Tender, new high efficiency transformers can be installed..
3	Emission reductions due to reduction in no-load losses alone are claimed	Only no-load losses are included in the calculation of emission reductions. See spreadsheet in Appendix 4	OK Confirmed in accordance with the AM0067
4	Installation of transformers within the distribution grid is governed by performance levels established by local or national regulation, which define maximum permissible load losses and no-load losses	Installation of transformers is performed with reference to national regulation governing maximum permissible load and no load loses***.	OK Confirmed with KPLC standard and International standard IEC.
5	Load losses, at rated load, of the transformers implemented under the project activity are demonstrated to be equal or lower than the load losses in transformers that would have been installed in absence of the project activity	Demonstration is done for the baseline and project scenario to show that load losses for project transformers are lower than the load losses in transformers that would have been installed in absence of the project activity. See spreadsheet in Appendix 4.	OK Confirmed in accordance with the AM0067

No	Applicability conditions of the methodology	CPA specification	Check Result
6	The transformers installed in the project activity comply with national / international QA/QC standards. This shall be demonstrated through certification based on test conducted using relevant national/international testing standards from an accredited entity/government recognized entity. The certification report shall include information on the measured performance levels for load losses and no-load losses in various operational conditions and in addition, the associated uncertainty	The transformers installed in the project activity comply with national / international QA/QC standards. This shall be demonstrated through certification based on test conducted using relevant national/international testing standards from an accredited entity/government recognized entity. The certification report shall include information on the measured performance levels for load losses and no-load losses in various operational conditions and in addition, the associated uncertainty.	OK Confirmed with KPLC standard and International standard IEC.
7	Project proponent implements a system to ensure that the replaced transformers are not used in other parts of the distribution grid or in another distribution grid	KPLC has a Management Information System that admits and stores replacement and scrapping records. This will be used to ensure that the replaced transformers are not used in other parts of the distribution grid or in another distribution grid.	OK Confirmed in accordance with the AM0067
8	A complete list of co-ordinates uniquely identifying each transformer installed under the project activity is provided	The Management Information System in criterion 8 above will track the location of each project transformer by means of a complete geographic coordinate system.	OK Confirmed by MIS system.
9	Data on total number and type of transformers installed over the last three years previous the project implementation is available	Data on the total number and type of transformers installed over the last three years prior to project implementation is available.	OK Confirmed by KPLC database in accordance with the AM0067

*** In the context of Kenya, the national/local regulation regarding the values of maximum permissible load losses and no-load losses doesn't exist such that International Electrotechnical Commission (IEC) standards are applied to the Kenyan Grid Systems by Kenya Power and Lighting (KPLC). The specifications set out by the KPLC for transformer are based on IEC 60076 and EN 50464-1.

Kenya Power and Lighting Company (KPLC) and the Rural Electrification Authority (REA) are the two power distribution utilities operating in Kenya. The Kenya Power and Lighting Company sets specifications or regulations for all the transformer types procured even those procured by REA. Regulations (specifications) for all equipment including transformers set by KPLC are taken as national regulations as the utility has the mandate through an Act of Parliament, which sets up the Energy Regulatory Commission. The specifications set by KPLC for technical selection criteria for tenders/ suppliers are derived from IEC standards.

Please refer to the table below for performance levels (i.e. maximum permissible load losses and no-load losses value) set by KPLC for energy efficient transformer which is based on IEC 60076 and EN 50464-1.

11kV transformer:

11/0.25kV Transformers – Pole Mounted			11/0.433kW Transformers – Pole Mounted			11/0.433kW Transformers – Ground Mounted		
Rating (KVA)	No-Load Losses (W)	Load Losses (W)	Rating (KVA)	No-Load Losses (W)	Load Losses (W)	Rating (KVA)	No-Load Losses (W)	Load Losses (W)
5	35	85	50	125	875	630	860	5400
15	45	250	100	210	1475	1000	1100	9500
25	60	320	200	305	2050			
			315	520	4200			

33 kV transformer:

33/0.25kV Transformers – Pole Mounted			33/0.433kW Transformers – Pole Mounted			33/0.433kW Transformers – Ground Mounted		
Rating (KVA)	No-Load Losses (W)	Load Losses (W)	Rating (KVA)	No-Load Losses (W)	Load Losses (W)	Rating (KVA)	No-Load Losses (W)	Load Losses (W)

25	60	320	50	160	1050	630	1100	5500
			100	270	1650	1000	1450	8900
			200	500	2080			
			315	640	3580			

Source: Specifications for energy efficient transformer set by KPLC which is based on IEC 60076

No	Combined tool to identify the baseline scenario and demonstrate additionality, Version 05.0.0 and additional explanations	CPA specification	Check Result
10.	Methodologies using this tool are only applicable if the potential alternative scenarios to the proposed project activity available to project participants cannot be implemented in parallel to the proposed project activity for example, an energy efficiency CDM project where the identified potential alternative scenarios are: (a) retrofit of an existing equipment, or (b) replacement of the existing equipment by new equipment, or (c) the continued use of the existing equipment without any retrofits	IEET/CPA-001/KENYA/KPLC is an energy efficiency CDM project where the identified potential alternative scenarios are: (a) replacement and installation of transformers using energy efficient amorphous technology and (b) the continuation of the current practice which is replacement and installation using the existing inefficient technology.	OK Confirmed
11.	Guidelines for objective demonstration and assessment of barriers	IEET/CPA-001/KENYA/KPLC meets requirements for No. 10 above	OK Confirmed

No	Tool to calculate emission factor for an electrical system, Version 04.0.0	CPA specification	Check Result
12.	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, i.e. 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).	IEET/CPA-001/KENYA/KPLC results in electricity savings that would have been provided by the grid.	OK Confirmed by KPLC database in accordance with the AM0067
13.	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.	Project electricity system is located within Kenya, which is not an Annex I country.	OK Confirmed

8.2 Boundary

1) Boundary for the PoA in terms of geographical area

JCI confirmed that the project boundary is appropriate for this project activity from the following steps and viewpoints:

1) Document review
JCI has reviewed the relevant documents and has confirmed that the project activities in PoA level are the country boundary of Kenya.
2) On-site visit on 29 May - 01 June 2012
JCI has confirmed that the PoA project will be implemented in Kenya through the interviews with the PP.

The boundary of the PoA is defined as the geographical area within which all the implemented the CPAs included in the PoA. Installation of Energy Efficient Transformers (IEET) activities included in this PoA will be installed within the borders of Kenya. Therefore, the boundary of the PoA is defined as Kenya.
The programme will be designed so that other countries will be added post-registration in-line with the project standard and if applicable the latest "Standard for the development of eligibility criteria for the inclusion of a project activity as a CPA under the PoA".

JCI concluded that the project boundary is appropriately defined in the PoA-DD/1.5/ and fully complies with the methodology AM0067 /4.2/.

2) Sources and GHGs in PoA-DD (Generic-CPA)

JCI checked that the system boundary and associated emissions for the project activity and the conclusion is summarized in the Table IV-10 below.

Table IV-10 Check for System Boundary and Emissions Sources in PoA-DD

Emissions	Source	Gas	Inclusion in Methodology	Inclusion in PoA-DD	Check result
Baseline emissions	Power plants servicing the grid	CO_2	Yes	Yes	OK
		CH_4	No	No Emission source small – excluded for simplification.	OK
		N_2O	No	No Emission source small – excluded for simplification.	OK
Project emissions	Power plants servicing the grid	CO_2	Yes	Yes *Main emission source*	OK
		CH_4	No	No Emission source small – excluded for simplification.	OK
		N_2O	No	No Emission source small – excluded for simplification.	OK

Location and Boundary of the project activities implemented under the CPA001 (CPA-DD)
Location of CPA001
The "CPA001" is planned to be implemented as project activity of 1st CPA.
JCI confirmed that the geographical location of CPA001 is in Kenya through the on-site visit.
Sources and GHGs in CPA001 (Generic-CPA).
Since the project technology of CPA001 is designed and operated as Installation of Energy Efficient Transformers (IEET), the system boundary and associated emissions for the project activity of CPA001 is confirmed as follows.
JCI confirmed that the CO_2 gas from connected National grid of Kenya is only the emission source as shown in the Table D.3.1 of Section D. of CPA001 (CPA-DD).

GHG emissions more than 1% of the overall (VVS Para.87)
JCI validated all potential sources of GHG emissions within the boundary of proposed project and concluded that all sources, which are expected to contribute more than 1% of the overall expected average annual emissions reductions are included in the estimation of the CPA001 (CPA-DD).

8.3 Baseline scenario for CPA001 in Kenya CPA

Baseline scenario of CPA001 is "Alternative-2: Continuation of the current practice. Replacement or installation of transformer with the most commonly used transformers in electricity grids" as described in Section D.4 of CPA001

JCI has validated and concluded the baseline scenario and emissions are appropriately defined complying with AM0067 /4.2/, and Combined tool for additionality /4.3/.

8.4 Assessment for the algorisms and/or formulae of generic CPA in PoA-DD level

JCI validated for the algorisms and/or formulae though taking into consideration on following steps in accordance with the paragraphs 97, 98 and 99 of VVS /4.1/.

1) Step-1 Validation work:
   JCI has verified the data and parameters used in the equations, including references to any other data sources used.
2) Step-2 Results of Validation work (Providing the opinion of validation):
   JCI has provided the opinion by taking following steps to assess whether the algorithms and/or formulae used to determine emission reductions for CO_2 abatement of the project activity is appropriate or not.
   (a) All assumptions and data used by the PP are listed in the PoA-DD, CPA-DD /1.5/, /1.6/, including their references and sources are appropriate.
   (b) All documentation used by the PP as the basis for assumptions and source of data is correctly quoted and interpreted in the PoA-DD, CPA-DD /1.5/, /1.6/;
   (c) All values used in the PoA-DD, CPA-DD /1.5/,/1.6/ are considered reasonable in the context of the proposed CDM project activity;
   (d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
   (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PoA-DD, CPA-DD /1.5/, /1.6/;

JCI validated that the Part II. Generic component project activity (CPA) of PoA-DD /1.5/ explains how the methods or methodological steps, in the selected methodology AM0067 /4.2/,
JCI confirmed that the equations applied for calculating baseline emissions, project emissions, leakage emissions and emission reductions under the generic CPA is according to the AM0067.

8.5 Estimation of emission reductions of CPA001 Kenya CPA

JCI validated the estimation of emission reductions of CPA001 Kenya CPA according to the methodology AM0067 /4.2/ and "Tool for emission factor /4.4/

1) Data and parameters that are to be reported ex-ante

JCI confirmed that the CPA-DD /1.6/ fully complies with the methodology AM0067 /4.2/ and The calculated value for the Combined Margin (CM) CO_2, $EF_{grid,CM,y}$ is based on version 04.0.0 of the *"Tool to calculate the emission factor for an electricity system"*.The tool applies the following 6 steps:

Step 1. Identify the relevant electricity systems
Step 2. Choose whether to include off-grid power plants in the project electricity system (optional)
Step 3. Select a method to determine the operating margin (*OM*)
Step 4. Calculate the operating margin emission factor according to the selected method
Step 5. Calculate the build margin (*BM*) emission factor
Step 6. Calculate the combined margin (*CM*) emissions factor

JCI has validated and concluded that the data and parameters used in the calculations are correctly interpreted and applied.

Step 1. ***Identify the relevant electricity systems;***

A grid/project electricity system is defined by the spatial extent of the power plants that are physically connected through transmission and distribution lines to the project activity (e.g. the renewable power plant location or the consumers where electricity is being saved) and that can be dispatched without significant transmission constraints.

For the purpose of determining the grid emission factor, the relevant project electricity system is the national electricity grid of Kenya.

A connected electricity system is an electricity system that is connected by transmission lines to the project electricity system. Power plants within the connected electricity system can be dispatched without significant transmission constraints but transmission to the project electricity system has significant transmission constraint.

Electricity is imported from the Ugandan grid via a 132 kV transmission line. However, the Ugandan grid is not described as a connected electricity system based on the following arguments:

- The imports from Uganda are less than 0.5% of Kenya's total[23], and exports are similarly small[24]. The result is close to net zero imports / exports over the interconnector.
- Kenya Power transmits excess units generated by Aggreko Limited to Uganda Electricity Transmission Company Limited (UETCL), whereas UETCL transmits back its own excess power to the Company at the same charge rate as that billed to them. This serves as a system balance with no real import or export activity being carried and hence is not a connected electricity system. There are no legal restrictions for this exchange that exist between the two countries and hence this cannot be considered as a transmission constraint.

The Kenyan DNA has not published a delineation of the project electricity system and connected electricity system. For the purpose of determining the grid emission factor, the relevant project electricity system is the national electricity grid of Kenya.

Imports:

For the purpose of determining the operating margin emission factor, the applied Grid Emission Factor (GEF) calculator uses 0 tCO_2/MWh for net electricity imports from UETCL, which is the relevant connected electricity system.

Exports:

There are no exports from the national grid of Kenya.

Data from the following official data sources are appropriately used for the calculations of emission factors.

Step 2. ***Choose whether to include off-grid power plants in the project electricity system (optional);***

JCI confirmed that **Option 1** for OM is properly selected as described in CPA-DD and below.

Option 1: only grid power plants are appropriately selected for the calculations reflecting current status of the off-grid power plants.

Step 3. ***Select a method to determine the operating margin (OM);***

The project activity applies Dispatch data analysis OM method based on the following reasons:

- Hourly generation data is available from the KPLC's dispatch center;
- Choice by project activity not to include off-grid power plants in the project electricity system;
- KPLC provides an accredited tool that uses dispatch data for OM calculation.

Data vintage for the whole crediting period:

The project activity uses *ex ante* data vintage for the calculation of GEF. The dispatch data analysis OM method requires annual monitoring of $EF_{grid,OM\text{-}DD,y}$. Therefore, $EF_{grid,OM\text{-}DD,y}$ will be updated annually as per the provisions in the tool.

Step 4: Calculate the operating margin emission factor according to the selected method

The dispatch data analysis OM emission factor ($EF_{grid,OM\text{-}DD,y}$) is determined based on the grid power units that are actually dispatched at the margin during each hour *h* where the project is displacing grid electricity. The emission factor is calculated using equation (5) below:

[23] Annual Report, KPLC (2011), page 88.
[24] Annual Report, KPLC (2011), page 115.

$$EF_{grid,OM-DD,y} = \frac{\sum_{h} EG_{PJ,h} \cdot EF_{EL,DD,h}}{EG_{PJ,y}} \quad \textbf{(5)}$$

Where:

$EF_{grid,OM-DD,y}$	= Dispatch data analysis operating margin CO_2 emission factor in year *y* (tCO_2/MWh)
$EG_{PJ,h}$	= Electricity displaced by the project activity in hour *h* of year *y* (MWh)
$EF_{EL,DD,h}$	= CO_2 emission factor for grid power units in the top of the dispatch order in hour *h* in year *y* (tCO_2/MWh)
$EG_{PJ,y}$	= Total electricity displaced by the project activity in year *y* (MWh)
h	= Hours in year *y* in which the project activity is displacing grid electricity
y	= Year in which the project activity is displacing grid electricity

Hourly fuel consumption data: Where this is available, $EF_{EL,DD,h}$ is calculated using equation (6) below:

$$EF_{EL,DD,h} = \frac{\sum_{i,n} FC_{i,n,h} \cdot NCV_{i,y} \cdot EF_{CO2,i,y}}{\sum_{n} EG_{n,h}} \quad \textbf{(6)}$$

Where:

$EF_{EL,DD,h}$	= CO_2 emission factor for grid power units in the top of the dispatch order in hour *h* in year *y* (tCO_2/MWh)
$FC_{i,n,h}$	= Amount of fossil fuel type consumed by grid power unit *n* in hour *h* (Mass or volume unit)
$NCV_{i,y}$	= Net calorific value (energy content) of fossil fuel type *i* in year *y* (GJ/mass or volume unit)
$EF_{CO2,i,y}$	= CO_2 emission factor of fossil fuel type *i* in year *y* (tCO_2/GJ)
$EG_{n,h}$	= Electricity generated and delivered to the grid by grid power unit *n* in hour *h* (MWh)
n	= Grid power units in the top of the dispatch (as defined below)
i	= Fossil fuel types combusted in grid power unit *n* in year *y*
h	= Hours in year *y* in which the project activity is displacing grid electricity
y	= Year in which the project activity is displacing grid electricity

Else:

The hourly emissions factor was calculated based on the energy efficiency of the grid power unit and the fuel type used, as follows in equation (7) below:

$$EF_{EL,DD,h} = \frac{\sum_{n} EG_{n,h} \times EF_{EL,n,y}}{\sum_{n} EG_{n,h}} \quad \textbf{(7)}$$

Where:

$EF_{EL,DD,h}$	= CO_2 emission factor for grid power units in the top of the dispatch order in hour *h* in year *y*(tCO_2/MWh)
$EG_{n,h}$	= Net quantity of electricity generated and delivered to the grid by grid power unit *n* in hour *h*(MWh)
$EF_{EL,n,y}$	= CO_2 emission factor of grid power unit *n* in year *y* (tCO_2/MWh)
n	= Grid power units in the top of the dispatch (as defined below)

h = Hours in year y in which the project activity is displacing grid electricity

Determination of $EF_{EL,m,y}$

Where data on fuel consumption and electricity generation is available, the emission factor ($EF_{EL,m,y}$)was determined using **Option A1** as shown in equation (8) below:

$$EF_{EL,m,y} = \frac{\sum_i FC_{i,m,y} \cdot NCV_{i,y} \cdot EF_{CO2,i,y}}{EG_{m,y}} \quad \textbf{(8)}$$

Where:

$EF_{EL,m,y}$ = CO_2 emission factor of power unit *m* in year *y* (tCO_2/MWh)
$FC_{i,m,y}$ = Amount of fossil fuel type *I* consumed by power unit *m* in year *y* (Mass or volume unit)
$NCV_{i,y}$ = Net calorific value (energy content) of fossil fuel type *I* in year *y* (GJ/mass or volume unit)
$EF_{CO2,i,y}$ = CO_2 emission factor of fossil fuel type *i* in year *y* (tCO_2/GJ)
$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit *m* in year *y* (MWh)
m = All power units serving the grid in year *y* except low-cost/must-run power units
I = All fossil fuel types combusted in power unit *m* in year *y*
y = The relevant year

For power units where data on electricity generation only and the fuel types used is available, the emission factor was determined using Option A2 based on the CO_2 emission factor of the fuel type used and the efficiency of the power unit, as follows in equation (9) below:

$$EF_{EL,m,y} = \frac{EF_{CO2,m,i,y} \cdot 3.6}{\eta_{m,y}} \quad \textbf{(9)}$$

Where:

$EF_{EL,m,y}$ = CO_2 emission factor of power unit *m* in year *y* (tCO_2/MWh)
$EF_{CO2,m,i,y}$ = Average CO_2 emission factor of fuel type *i* used in power unit *m* in year *y* (tCO_2/GJ)
$\eta_{m,y}$ = Average net energy conversion efficiency of power unit *m* in year *y* (ratio)
m = All power units serving the grid in year *y* except low-cost/must-run power units
y = The relevant year

Determination of the set of grid power units *n* that are in the top of the dispatch.

The applied GEF calculator applies merit (dispatch) orders for power plants based on incremental costs. This data is provided by the national Dispatch Center at Kenya Power, which is in line with the provisions of the tool.

The merit order[25] is used for stacking of each grid power plant generation at each hour h. For purposes of deriving the set of grid power units *n* that are in the top of the dispatch, the greater of either:

[25] KPLC monthly ranking order based on variable costs

a) 10%; or
b) The quantity of electricity displaced by the project activity during hour *h* divided by the total electricity generation by grid power plants during that hour *h*.

The above choice was made with regard to net electricity savings as a percentage of the total grid generation.

Step 5: Calculate the build margin (BM) emission factor

Data vintage:

The method for calculation chosen is **Option I**, where the build margin emission factor is calculated *ex ante* based on data for 2010 which is the most recent year.

Capacity additions:

Capacity additions from retrofits of power plants were not included in the calculation of the build margin emission factor.

Power units m for build margin calculation:

The sample group of power units *m* used to calculate the build margin was determined as per the following procedure, consistent with the data vintage selected above:

a) Identify the set of five power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently (SET5-units) and determine their annual electricity generation (AEGSET-5-units, in MWh);
b) Determine the annual electricity generation of the project electricity system, excluding power units registered as CDM project activities (AEGtotal, in MWh). Identify the set of power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently and that comprise 20% of AEGtotal (if 20% falls on part of the generation of a unit, the generation of that unit is fully included in the calculation) (SET≥20%) and determine their annual electricity generation(AEGSET-≥20%, in MWh).

c) From SET5-units and SET≥20% select the set of power units that comprises the larger annual electricity generation (SETsample);

   Identify the date when the power units in SETsample started to supply electricity to the grid. If none of the power units in SETsample started to supply electricity to the grid more than 10 years ago, then use SETsample to calculate the build margin.

   There being no power plant identified in this set, the build margin was calculated as the generation-weighted average emission factor (tCO_2/MWh) of all power units *m* during the most recent year *y* for which electricity generation data is available, calculated as shown in equation (10) below:

$$EF_{grid,BM,y} = \frac{\sum_{m} EG_{m,y} \times EF_{EL,m,y}}{\sum_{m} EG_{m,y}} \quad \textbf{(10)}$$

Where:

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year *y* (tCO_2/MWh)
$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit *m* in year *y* (MWh)
$EF_{EL,m,y}$ = CO_2 emission factor of power unit *m* in year *y* (tCO_2/MWh)
m = Power units included in the build margin
y = Most recent historical year for which power generation data is available

The table below outlines the values used for each parameter in the calculation of $EF_{grid,BM,y}$.

Selected set of power units that comprises the larger annual energy generation			
Power Station	**Electricity generation Based on Data Import $EG_{m,y}$**	**Emission Factor of Plant $EF_{EL,m,y}$**	**$EG_{m,y}$*$EF_{EL,m,y}$**
AGGREKO (Muhoroni)	17,081	0.7164	12,236
AGGREKO (Embakasi) 7	27,821	0.6811	18,949
AGGREKO (Embakasi) 6	75,868	1.1112	84,306
WELLHEAD OLKARIA	-	0.0000	-
KIPEVU DIESEL 3	597,637	0.5993	358,157
AGGREKO (Embakasi) 5	71,027	0.5303	37,663
NGONG WIND TOTAL	17,436	0.0000	-
IMENTI TEA FACTORY	-	0.0000	-
AGGREKO (Embakasi) 4	165,192	0.5161	85,254
AGGREKO (Naivasha)	-	0.6617	-
RABAI POWER	386,779	0.5939	229,725
AGGREKO (Embakasi) 3	-	0.6617	-
IBERAFRICA 2	382,836	0.6800	260,342
	1,741,679		**1,086,633**
		EFgrid,BM,y	**0.6239**

Step 6 : Calculate the combined margin emissions factor

The calculation of the combined margin (CM) emission factor ($EF_{grid,CM,y}$) is based on a weighted average CM as shown in equation (11) as follows:

$$EF_{grid,CM,y} = EF_{grid,OM,y} \times W_{OM} + EF_{grid,BM,y} \times W_{BM} \quad \textbf{(11)}$$

Where:

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year *y* (tCO_2/MWh)

$EF_{grid,OM,y}$ = Operating margin CO_2 emission factor in year *y* (tCO_2/MWh)

W_{OM} = Weighting of operating margin emissions factor (%)

W_{BM} = Weighting of build margin emissions factor (%)

The default weight of 50% for OM and 50% for BM is appropriately applied for the calculation of CM emission factor: = 0.671(OM) x 0.5 + 0.6239(BM) x 0.5 = 0.6475

JCI also has confirmed that the above calculations can be replicated based on equations of the Tool for EF /4.5/ and data listed in table of CPA-DD Grid Factor Calculation /1.3/ has accorded completely.

Since the CM emission factor (0.6475 tCO_2/MWh) of Kenya Grid EF has been defined in CPA level, the Emission Factor for the continuous specific CPA-DD shall be updated, using the latest data of the grid of Kenya for the first crediting period in each CPA-DD level.

Ex-ante calculations of emission reductions in CPA001

Sample calculation(11kV, 100kVA):

Calculate baseline emissions for a, 11kV 100kVA transformer

$$BE_y = \sum_{k=1}^{n} \left(NLL_{BL,k} \times n_{k,y}\right) \times MP \times (1 - Br) \times EF_{CO2,grid,y} \times 10^{-6}$$

Where:

BE_y = Baseline emissions in year '*y*' (tCO_2/year)
k = Index 'k' represents type of transformers, installed in the project activity
$NLL_{BL,k}$ = No-load loss rate of the transformer type 'k' that would have been installed by the end of the year '*y-1'* in the baseline scenario. No-load loss rate for each baseline transformer type 'k' is determined individually, as given in equation 2 in Section D.5 above
MP = Duration of each monitoring period (hours)
Br = Black out rate of each monitoring period (%)
$EF_{CO2,grid,y}$ = CO_2 emission factor of the grid for year 'y' where the project activity is implemented (tCO_2/MWh). EF is calculated adopting the combined margin and as described in the "Tool to calculate the emission factor of an electricity system"
$n_{k,y}$ = Cumulative number of type 'k' transformers installed by the project activity at the end of year 'y-1'

Sample calculation for baseline transformers

k = 100kVA
$NLL_{BL,k/}$ = 180 Watts (see spreadsheet in Appendix 4 for calculation)
MP = 8760 hours
Br = 0.69%
$EF_{CO2,grid,y}$ = 0.6475tCO_2/yr
$n_{k,y}$ = 4547

Therefore:

BE_y = 180*4547*8760*(1-0.0069)*0.6475*10^-6 = 4600tCO_2/yr

Project emissions

$$PE_y = \sum_{k=1}^{n} \left[(1 + UNC) \times NLL_{PR,k,y} \times n_k \times MP \times (1 - Br) \times EF_{CO2,grid,y} \times 10^{-6}\right]$$

Where:

PEy = Project emissions in year '*y*' (tCO_2/year)
k = Index 'k', type of transformer, in the geographical region of the project activity area installed by the project activity at the end of year 'y-1'

$NLL_{PR\,k,y}$ = No-load loss rate of the energy efficiency transformer i which will have been installed by the end of the year '*y-1*' in the project activity (Watts)
MP = Duration of each monitoring period (hours)
Br = Black out rate of each monitoring period (%)
$EF_{CO2,grid,y}$ = EF is calculated adopting the combined margin and as described in the "Tool to calculate the emission factor of an electricity system"
UNC = Maximum allowable uncertainty for the no-load losses stated in the certification report provided by an accredited entity
N_k = Total cumulative number of type 'k' transformers installed by the project activity at the end of year 'y-1'

Sample calculation for project transformers

PE_y = Project emissions in year '*y*' (tCO_2/year)
k = 100kVA
$NLL_{PR\,k,y}$ = 36 Watts (see spreadsheet in Appendix 4 for calculation)
MP = 8760hours
Br = 0.69%
$EF_{CO2,grid,y}$ = 0.6475tCO_2/yr
UNC = 15%
n_k = 4547

Therefore:

PEy = 1.15*36*4547*8760*(1-0.0069)*0.6475*10^-6 = 1059 tCO2/yr

Emission reductions

$$ER_y = BE_y - PE_y$$

Where:
ER_y = Emission reductions in year y (t CO_2)
BE_y = Baseline Emissions in year y (t CO_2)
PE_y = Project emissions in year y (t CO_2)

Sample calculation:

ER_y = Emission reductions in year y (t CO_2)
BE_y = 4600 tCO_2/yr
PE_y = 1059 tCO_2/yr
ER_y =4600 –1059 = 3541 tCO_2/yr

2) The ex-ante estimates of Unite Price of Transformers and Loss on calculated emission reductions in total

Transformer Type		Unite price(US$)		Loss values(W)				Check Result and Evidence
		Baseline	Project	Baseline		Project		
	kVA			NL*1	LL*2	NL*3	LL*4	
11kV	15	1,119	1,375	43	264	9	238	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	25	1,580	1,943	60	286	12	257	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	50	2,770	3,405	98	534	20	481	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	100	3,584	4,406	180	1,108	36	997	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	200	5,374	6,607	272	2,380	54	2,142	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/

	325	7,496	9,216	433	2,905	87	2,615	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	630	12,712	15,629	815	5,110	163	4,599	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	1000	18,663	22,946	950	7,034	190	6,331	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/

Transformer Type		Unite price (US$)		Loss values (W)				Check Result and Evidence
		Baseline	Project	Baseline		Project		
	kVA			NL*1	LL*2	NL*3	LL*4	
33kV	15							N/A
	25	2,039	2,507	60	315	12	284	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	50	3,568	4,387	104	634	21	571	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	100	4,543	5,586	199	940	40	846	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	200	7,240	8,901	362	2,465	72	2,219	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	325	9,047	11,123	528	3,593	106	3,234	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	630	22,310	27,429	1,100	4,438	220	3,994	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
	1000	30,768	37,828	1450	6,703	290	6,033	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/

NL^{*1}; $NLL_{BL,k} = \min\{NLL_{reg,k}, NLL_{AVG,k}\}$ LL^{*2}; $LL_{BL,k}$ NL^{*3}; $NLL_{PR,k}$ LL^{*4}; $LL_{PR,k}$

3) The ex-ante estimates of the ratings and quantity /capacity on calculated project emission reductions in total. (29,000sets/ 3,766,130kVA)

- 11kV Distribution transformers. (20,491sets, 2,904,265kVA)

kV	kVA	No. of Transformers	(for replacement)	(for new site)	Sub-total of Capacity (kVA)
11	15	2,707	812	1,895	40,605
	25	2,053	616	1,437	51,325
	50	2,086	626	1,460	104,300
	100	4,547	1,364	3,183	454,700
	200	6,964	2,090	4,874	1,392,800
	315	1,663	499	1,164	523,845
	630	363	109	254	228,690
	1,000	108	32	76	108,000

- 33kV Distribution transformers. (8,509sets, 861,865kVA)

kV	kVA	No. of transformers	(for replacement)	(for new site)	Sub-total of Capacity (kVA)
33	15	0	0	0	0
	25	1,824	547	1,277	45,600
	50	2,604	782	1,822	130,200
	100	2735	821	1,914	273,500
	200	592	178	414	118,400

	315	627	188	439	197,505
	630	82	25	57	51,660
	1,000	45	14	31	45,000

4) The ex-ante estimates of Total calculated emission reductions in total/year

- 11kV Distribution transformers (20,491 sets, 2,904,265kVA)

Transformer Type		Loss values (W)				No. of project transfor-mers	Unit Baseline Emission (tCO_2/yr)	Unit Project Emission (tCO_2/yr)	Unit Emission Reduction (tCO_2/yr)	Baseline Emissions (tCO_2/yr)	Baseline Emissions (tCO_2/yr)	Emission Reductions (tCO_2/yr)
		Baseline		Project								
	kVA	NL	LL	NL	LL							
11 kV	15	43	264	9	238	2,707	0.243	0.056	0.187	658	152	506
	25	60	286	12	257	2,053	0.338	0.078	0.260	693	160	533
	50	98	534	20	481	2,086	0.552	0.127	0.425	1,151	265	886
	100	180	1,108	36	997	4,547	1.012	0.233	0.779	4,600	1,059	3,541
	200	272	2,380	54	2,142	6,964	1.532	0.353	1.180	10,672	2,455	8,217
	325	433	2,905	87	2,615	1,663	2.441	0.562	1.880	4,060	934	3,126
	630	815	5,110	163	4,599	363	4.590	1.058	3.532	1,666	384	1,282
	1,000	950	7,034	190	6,331	108	5.343	1.231	4.111	577	133	444
									(Sub-total)	24,077	5,542	18,535

- 33kV Distribution transformers (8,509sets, 861,865kVA)

Transformer Type		Loss values (W)				No. of project transfor-mers	Unit Baseline Emission (tCO_2/yr)	Unit Project Emission (tCO_2/yr)	Unit Emission Reduction (tCO_2/yr)	Baseline Emissions (tCO_2/yr)	Baseline Emissions (tCO_2/yr)	Emission Reductions (tCO_2/yr)
		Baseline		Project								
	kVA	NL	LL	NL	LL							
33 kV	15					0						
	25	60	375	12	284	1,824	0.338	0.078	0.260	616	142	474
	50	104	634	21	571	2,604	0.586	0.135	0.451	1,525	351	1,174
	100	199	940	40	846	2,735	1.121	0.258	0.863	3,065	706	2,359
	200	362	2,465	72	2,219	592	2.039	0.470	1.569	1,207	278	929
	325	528	3,593	106	3,234	627	2.973	0.684	2.289	1,864	429	1,435
	630	1,100	4,438	220	3,994	82	6.195	1.427	4.768	508	117	391
	1,000	1,450	6,703	290	6,033	45	8.156	1.889	6.267	367	85	282
									(Sub-total)	9,152	2,108	7,044
									(G.-total)	33,229	7,650	25,579

5) The ex-ante estimates parameters of emission reductions calculated in CPA001 under PoA-DD

Parameter	Unit	Description	Ex-ante estimates	Check result Reference
For baseline emissions				
$NLL_{BL,k}$	Watts	No-load loss rate of the transformer type 'k' that would have been installed by the end of the year 'y-1' in the baseline scenario.	2)The ex-ante estimates of Unite Price of Transformers and Loss reductions calculated emission reductions	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
$NLL_{reg,k}$	Watts	No-load losses (W) defined by the national regulations for k type of transformers	No-Load Losses set by the KPLC, which are based on IEC 60076, and EN 50464-1	**OK**, KPLC Specification for transformer, IEC 60076 and EN 50464-1
For project emissions				
$NLL_{PR\ k\ ,y}$	Watts	No-load loss rate of the energy efficiency transformer which will have been installed by the end of the year 'y-1	2)The ex-ante estimates of Unite Price of Transformers and Loss reductions calculated emission reductions	**OK**, KPLC Distribution Transformer Orders for 2006 –

Parameter	Unit	Description	Ex-ante estimates	Check result Reference
				2011with Test Data/7.1/
For common calculation				
EF $_{CO2,grid,y}$	tCO_2/MWh	EF is calculated adopting the combined margin and as described in the "Tool to calculate the emission factor of an electricity system"	**0.6475**	OK Confirmed in accordance with AM0067
MP	hours	Duration of each monitoring period	**8,760**	OK
Br	%	Black out rate in the corresponding monitoring period	**0.69**	OK, confirmed on FSC/9.3/.
K	Index 'k' represents type of transformers, installed by the project activity	Type of transformer (type based on capacity and transformation ratio) installed by the project activity	3) The ex-ante estimates of emission reductions calculated on the ratings and expected Quantity /Capacity of the project in total/year. (29,000sets/ 3,766,130kVA)	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/
$n_{k,y}$	Number	Cumulative number of transformers of type 'k' installed in the project activity by the end of year 'y-1'	3)The ex-ante estimates of emission reductions calculated on the ratings and expected Quantity /Capacity of the project in total/year. (29,000sets/ 3,766,130kVA)	**OK**, KPLC Distribution Transformer Orders for 2006 – 2011with Test Data/7.1/

5) Summary of the ex-ante Estimates of Emission Reductions

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
1 July 2015 – 30 June 2016	0	0	0	0
1 July 2016 – 30 June 2017	33,229	7,650	0	25,579
1 July 2017 – 30 June 2018	33,229	7,650	0	25,579
1 July 2018 – 30 June 2019	33,229	7,650	0	25,579
1 July 2019 – 30 June 2020	33,229	7,650	0	25,579
1 July 2020 – 30 June 2021	33,229	7,650	0	25,579
1 July 2021 – 30 June 2022	33,229	7,650	0	25,579
1 July 2022 – 30 June 2023	33,229	7,650	0	25,579
1 July 2023 – 30 June 2024	33,229	7,650	0	25,579
1 July 2024 – 30 June 2025	33,229	7,650	0	25,579
Total	299,061	68,850	0	230,211
Total number of crediting years	10			
Annual average over the crediting period	29,906	6,885	0	23,021

In the above Table it is shown that the emission reduction in the first year is zero. The applied Methodology AM0067 stipulates in the Note 2 of Applicability that Transformers can be installed at any time the crediting period in the project activity area, but they will only be eligible to obtain CERs from the beginning of the subsequent monitoring period. The CPA001 expects that the total 29,000 transformers will be installed within the first one year (first monitoring period) and from second year only monitoring of the installed transformer in the first year will be conducted. Then JCI confirmed with the spreadsheet /9.2/ that the calculations are appropriate and correct.

JCI confirmed the details of the calculation of emission reductions by CPA001 described above reviewing the Emission Reductions in CPA001 /1.6/ which is attached as part of CPA and concluded the above procedure and the results are appropriate.

8.6 Monitoring plan

The monitoring plan of the proposed CDM PoA project activity is based on and in compliance with the applied monitoring methodology AM0067 /4.2/.
The monitoring plan as for the general approach and concept in Generic-CPA (as Part II of PoA-DD) /1.5/ was validated and concluded the purposes and coverage of the monitoring plan are appropriately addressed in the section B.7.2. in the Generic-CPA
The monitoring plan as for the specific approach in Specific-CPA (CPA001) was validated as follows.
JCI applied a two-step process to assessing compliance with the requirements of monitoring plan, as follows:

(1) Compliance of the monitoring plan with the approved methodology:
   A) Identified the list of parameters required by the selected approved methodology by means of document review
   B) Confirmed that the monitoring plan contains all necessary parameters, that they are clearly described and that the means of monitoring described in the plan complies with the requirements of the applied methodology AM0067

(2) Implementation of the plan:
   A) The monitoring arrangements described in the monitoring plan are feasible within the project design
   B) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified

The assessment has been conducted by means of reviewing of the documented procedures, interviewing with relevant personnel, project plans and physical inspections of the proposed CDM project activity site.
Complying with VVS Para 133, JCI confirms that:

a) The monitoring plan is complying with the relevant methodology/4.2/ and tool /4.2/, /4.4/.
b) The monitoring arrangements described in the monitoring plan are feasible within the project design by the document review, interview with the KPLC as implementer of CPA001 /10.1/ and Findings; and
c) The KPLC as implementer of CPA001 has enough ability to implement the monitoring plan.

1) Compliance of the monitoring plan with the approved methodology in CPA-DD:

The monitoring plan was validated from the aspect of compliance with the requirements of the applied methodology AM0067 /4.2/.
JCI issued the findings of CL-13 to clarify the calibration of monitoring equipment, and the PP provided the information and evidences with the revised CPA-DD /1.6/.
Thus, CL-13 was closed.

2) Parameters to be monitored for ex-post

The monitoring parameters specified in the Generic CPA and CPA001 were cross-checked with the relevant methodology /4.2/ and tool /4.3/ and confirmed that the following seven(7) parameters for ex-post monitoring parameters in section D.7.1 “Data and parameters to be monitored” of CPA001/1.4/ are fully compliance with the methodology as summarized in Table IV-11 below.

Table IV-11 Check for the parameters to be monitored under CPA001 in Kenya

Parameter	Unit	Description	Frequency, Calibration	QC/QA	Check result Reference
$EF_{CO2,grid,y}$	tCO_2/MWh	EF is calculated adopting the combined margin and as described in the	Annually	The CME will be responsible for conducting QA/QC of the monitored data. In order to ensure that the quality assurance and quality control procedures for	OK

Parameter	Unit	Description	Frequency, Calibration	QC/QA	Check result Reference
		"Tool to calculate the emission factor of an electricity system"		recording, maintaining and achiving data is in line with the PoA requirements, the CME will conductor a data audit on a six month basis.	
MP	hours	Duration of each monitoring period	N\A, The monitoring period is a year.	The CME will be responsible for conducting QA/QC of the monitored data. In order to ensure that the quality assurance and quality control procedures for recording, maintaining and achiving data is in line with the PoA requirements, the CME will conductor a data audit on a six month basis.	OK
Br	%	Black out rate in the corresponding monitoring period	Annually	The CME will be responsible for conducting QA/QC of the monitored data. In order to ensure that the quality assurance and quality control procedures for recording, maintaining and achiving data is in line with the PoA requirements, the CME will conductor a data audit on a six month basis.	OK
k	Index 'k' represents type of transformers, installed by the project activity	Type of transformer (type based on capacity and transformation ratio) installed by the project activity	At each transformer installation, replacement or removal.	The CME will be responsible for conducting QA/QC of the monitored data. In order to ensure that the quality assurance and quality control procedures for recording, maintaining and achiving data is in line with the PoA requirements, the CME will conductor a data audit on a six month basis.	OK
$n_{k,y}$	Number	Cumulative number of transformers of type 'k' installed in the project activity by the end of year 'y-1'	At each transformer installation, replacement or removal.	The CME will be responsible for conducting QA/QC of the monitored data. In order to ensure that the quality assurance and quality control procedures for recording, maintaining and achiving data is in line with the PoA requirements, the CME will conductor a data audit on a six month basis.	OK
$NLL_{PR,k,y}$	Watts	No-load loss rate of the high energy efficiency transformer type 'k' installed by end of the year 'y-1' by the project activity	Manufacturer's performance and factory acceptance test report prepared at the time of pre-delivery inspection.	The CME will be responsible for conducting QA/QC of the monitored data. In order to ensure that the quality assurance and quality control procedures for recording, maintaining and achiving data is in line with the PoA requirements, the CME will conductor a data audit on a six month basis.	OK
$LL_{PR,k}$	Watts	Load loss rate of the high energy efficiency transformers type 'k' installed by end of year 'y-1' by the project activity	Every time a transformer is installed.	The CME will be responsible for conducting QA/QC of the monitored data. In order to ensure that the quality assurance and quality control procedures for recording, maintaining and achiving data is in line with the PoA requirements, the CME will conductor a data audit on a six month basis.	OK
Number of replaced trans-formers	Number	Historical record of replaced transformers under the project activity. The record shall	Annually	The CME will be responsible for conducting QA/QC of the monitored data. In order to ensure that the quality assurance and quality control procedures for recording, maintaining and achiving data is in line with the PoA requirements, the CME will	OK

Parameter	Unit	Description	Frequency, Calibration	QC/QA	Check result Reference
		include information on how the transformers are not going to be use in other parts of the grid or in another grid		conductor a data audit on a six month basis.	

JCI concludes that the monitoring plan based on the parameters above is appropriate.

9. Environmental impacts

1) PoA-DD level

Environmental analysis of IEETCDM-PoA is done at PoA level (See section E.1).

In addition, CPAs may be implemented in almost identical environments targeting identical baselines. In this regard, it is reasonable that the environmental analysis of IEET CDM-PoA be undertaken at PoA level.

An EIA is not required for CPAs in the host country of the Republic of Kenya, as activities under the IEET CDM-PoA are not in the second schedule of the Environmental Management and Co-ordination Act, 1999 (EMCA, 1999) of activities that require an Environmental Impact Assessment (EIA)

2) CPA-DD (CPA001) level

Environmental analysis of IEET CDM-PoA is done at PoA level.

An EIA is not required for CPAs in the host country of the Republic of Kenya, as activities under the IEET CDM-PoA are not in the second schedule of the Environmental Management and Co-ordination Act, 1999 (EMCA, 1999) of activities that require an Environmental Impact Assessment (EIA).

The design document of the PoA describes virtually every procedure regarding governance of all the CPAs and includes:

- Installation
- Replacements
- Identification
- Scrapping
- Role of entities, etc.

In addition, CPAs may be implemented in almost identical environments targeting identical baselines. In this regard, it is reasonable that the environmental analysis of IEETCDM-PoA be undertaken at PoA level.

Therefore an EIA will be carried out for the PoA level in compliance with the laws of Kenya. As stated in the CPA001, JCI confirmed that the EIA procedure has started in November 2011 with the selection of an Environmental Consulting firm by the PP to undertake the EIA in accordance with the adequate terms of reference.

It is confirmed that there is no necessity of EIA conducting and the conclusions of that there are no significant negative impacts related to the IEET CDM-PoA as stated in the CPA001.

The application for a compliance letter on the Environmental Permit by the Ministry of Environment (NEMA) was issued on 06 June 2012 /2.3/.

10. Local stakeholder consultation

1) PoA level

As stated in the PoA-DD, Local stakeholder consultation of IEETCDM-PoA is done at PoA level to ensure that a wider group of stakeholders is reached since each CPA affects different geographical positions and different groups of stakeholders.

JCI confirmed that the description of the process by which comments from local stakeholders were invited and compiled is provided in CPA001 level.

2) CPA-DD (CPA001) level

JCI assessed the adequacy of the local stakeholder consultation for this project activity taking the following steps and viewpoints according to the para.140, VVS.

(1) Document review
JCI has reviewed the relevant documents /12.1/,/12.2/,/12.3/,/12.4/12.5/ to confirm that the process of local stakeholder consultation for this project activity is adequately conducted.

(2) On-site visit on 29 May - 1 June 2012
JCI has conducted on-site visit and had made interviews with the local stakeholders in Kenya.

JCI confirmed that the stakeholder consultation consisted of a public meeting with the identified stakeholders at Nairobi, Kenya on 21 March 2012 by the referenced evidences /12.1/, /12.2/, /12.3/, /12.4/, /12.5/.

JCI confirmed the process for local stakeholder consultation was adequately taken with the following steps.

(1) Identification of interested and affected parties /12.1/
- Local Leaders (Municipality Representatives)
- Local Residents
- Local suppliers
- Land Owners
- Large Power Consumers
- Representatives of other Authorities

(2) Local stakeholders were invited through post mailing addressed to: /1.4/
- Paramount Chiefs
- Districts assemblies
- Local committees
- Members of Parliament
- Neighbour institutions and industries
- Media

(3) Participants are requested to submit written questions or comments after the meeting for consideration until 04 April 2012
(4) Presentation on CDM and IEET project at the Meeting /12.2/
(5) Compilation of minutes of meeting Provision of “response form” /12.3/
(6) Compilation of the comments received /12.4/
(7) Compilation of the answer to the comments received /12.5/ summarized in the CPA001 /1.4/

JCI issued the CL-9 to clarify the matter related to the stakeholder meeting, through the CL-9 resolution, document reviews, and interviews, JCI concluded that the project activity, supported by local stakeholders, gives no significant adverse impacts on local environment, and instead is expected to contribute to the development of local economy and the improvement of living conditions of local residents.

xAppendix A Protocol for CDM (PoA) Project

Abbreviation

CAR	Corrective Action Request	**CL**	Clarification Request	**FAR**	Forward Action Request,
VVS	Validation and Verification Standard			**NA**	Not Applicable
Tbv	To be verified	**PA**	Project Activities	**PP**	Project Participants
PoA	Programme of Activities	**CPA**	Component Project Activity	**PoA GL, CPA GL**	PoA-DD, CPA-DD Completion Guidelines

Std Add.: Standard for Demonstration of Additionality, Eligibility Criteria and application of Multiple methodologies for Programme of Activities.
Std. Sampling: Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	General guidelines(PoA)		--	--
	Title of the project activity:		--	--
1.	Confirm that the PoA-DD Form applies **version 02.0 of F-CDM-PoA-DD.** (Guideline Para.8)	PoA GL	Confirmed	**OK**
2.	Confirm that the PoA-DD is completed **in English.** (all attached documents must be in English) (Guideline Para.11)	PoA GL		
3.	Confirm that the PDD is completed using the same format **without modifying its font, headings or logo,** and without any other alteration to the form.(Guideline Para. 12)	PoA GL		
4.	Confirm that the tables and their columns in the PoA-DD are **not modified or deleted.** (Guideline Para. 13)	PoA GL		
5.	Confirm that the **blanks are left intentionally** for the "not applicable section" of the PoA-DD. (Guideline Para. 14)	PoA GL		
6.	Confirm that the values in the PoA-DD are presented in an internationally recognized format.{For example: digits grouping in thousands and a decimal point with a dot (.), not with a comma (,)} (e.g 1,000 representing one thousand and 1.0 representing one. Confirm that the units used for weights/currency are in S.I. units/norms (thousand/million)	PoA GL		
	Check for PoA-DD			
PART I.	**Programme of activities (PoA)**		--	--
Section A.	**General description of PoA**			
A.1	**Title of the PoA:**			
(a)	Confirm the followings related to the title of the PoA.	PoA GL	Confirmed	**OK**
	(a) the title of the PoA.			
(b)	(b) the version number of the PoA-DD.			

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
(c)	(c) the date the PoA-DD in DD/MM/YYYY.		Confirmed	**OK**
A.2.	**Purpose and general description of the PoA:**			
(a)	Confirm that the description is provided on the policy/measure or stated goal of the PoA.	PoA GL	Confirmed	**OK**
(b)	Confirm that the description is provided on the framework for the implementation of the PoA.	PoA GL		
(c)	Confirm that the description is provided on the voluntary action by the CME for PoA.	PoA GL		
A.3	**CMEs and participants of PoA**			
(a)	Confirm that the identification of the CME is provided for the PoA.	PoA GL	Confirmed	**OK**
(b)	Confirm that the description is provided on Project participants of the PoA.	PoA GL	Confirmed	**OK**
A.4	**Party(ies)**			
(a)	Confirm that the Party(ies), PPs and CMEs are listed in the table.	PoA GL	Confirmed	**OK**
(b)	Confirm that the "(host)" is indicated in the table.	PoA GL		
(c)	Confirm that the name of PPs are consistent with the contact information in Appendix 1	PoA GL		
A.5.	**Physical/ Geographical boundary of the PoA**			
(a)	Confirm that the description is provided on the defined boundary of PoA as a geographical area. (e.g. municipality, region within a country, country or several countries)	PoA GL	Confirmed	**OK**
A.6.	**Technologies/measures**			
A.6	Confirm that the description is provided on the technologies for the CPAs.	PoA GL	Confirmed	**OK**
A.7.	**Public funding of PoA**			
A.7	Confirm that the description is provided on no public funding from Parties for PoA.	PoA GL	Confirmed	**OK**
	If public fund has received for PoA, (a)Provide information on Parties providing public funding; (b)Attach in Appendix 2: the affirmation obtained from such Parties	PoA GL	Confirmed	**OK**
SectionB.	**Demonstration of additionality and development of eligibility criteria**			
B.1	**Demonstration of additionality for PoA**			
B.1.1	Confirm that additionality is demonstrated by establishing that in the absence of CDM, none of the implemented CPAs would occur.	Std Add. Para.7	Confirmed in eligibility criteria	**CL-1**

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
B.1.2	If PoA consists of one or more microscale projects as CPAs, confirm that PoA includes eligibility criteria derived from all the relevant requirements of the *"Guidelines for demonstrating additionality of microscale project activities"*.	Std Add. Para.8.	NA	**NA**
B.1.3	If PoA consists of one or more small-scale projects as CPAs, confirm that PoA includes eligibility criteria derived from all the relevant requirements of *attachment A of Appendix B of the "Simplified modalities and procedures for small-scale CDM project activities"*.	Std Add. Para.9	NA	**NA**
B.1.4	If PoA consists of one or more large scale projects as CPAs, confirm that PoA includes eligibility criteria derived from all the relevant requirements contained in the additionality section of the large scale methodologies.	Std Add. Para.10	Confirmed in eligibility criteria	**OK**
B.1.5	Confirm whether the CME demonstrates that compliance with the additionality-related eligibility criteria set in the PoA-DD ensures that all the relevant additionality-related guidelines, tools or any requirements embedded in the methodologies are met.	Std Add. Para.11	Confirmed in eligibility criteria	**OK**
B.1.6	Confirm that for PoA involving combinations of technologies/measures and/or methodologies, the eligibility criteria relative to each of them are proposed to demonstrate additionality. Types of combinations as indicated in paragraph 29(a) to 29(d) of Std Add. shall be taken into account.	Std Add. Para.12	Confirmed in eligibility criteria	**OK**
B.2	**Demonstration of additionality**		**--**	**--**
B.2.1	Confirm that the additionality for the PA is demonstrated adequately in the PDD in accordance with the selected methodology.	Para. 101	Confirmed in eligibility criteria	**OK**
B.2.2	Confirm whether the PP uses the "Tool for the demonstration and assessment of additionality". If yes, confirm that it is in line with the methodology.	PDD GL	Applied Tool to be clarified	**CAR-3**
B.2.3	Confirm that the reliability and credibility of all data, rationales, assumptions, justifications and documentation provided by the PP to support the demonstration of additionality are assessed using local knowledge and sectoral and financial expertise.	Para. 102	Applied Tool to be clarified	**CAR-3**
B.2.4	If required by the applicable methodology, confirm that the tools and guidelines to demonstrate are considered for the additionality of proposed PA, and also confirm that .the specific complementary or alternative requirements included in the methodology for demonstrating the additionality.	Para. 103	Applied Tool to be clarified	**CAR-3**
B.3	**Start Date of PoA/CPA**		**--**	**--**
B.3.1	Confirm that the start date of any CPA is not prior to the commencement of the validation of the PoA, which is the date the CDM-PoA-DD is first published for global stakeholder consultation.	Para. 193.	The starting date of CPA001 to be clarified by documented evidence	**CL-6**
B.3.2	It is not required to assess prior consideration of CDM for PoA, as it is expected that no component of the programme will commence prior to the start date of validation.	Para. 194		
B.4	**Identification of alternatives (Para. 113-116)**			
B.4.1	Confirm that the baseline scenario is prescribed in the methodology selected by the CDM PA.	Para. 113	Confirmed	**OK**

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	If no (no prescribed baseline scenarion), confirm that the PDD identified credible alternatives to the PA in order to determine the most realistic baseline scenario.		Confirmed	**OK**
B.4.2 i ii iii	Confirm that the list of alternatives given in the PDD have been assessed and determined by considering the following conditions. i. The list of alternatives includes the option that the PA is undertaken without being registered as CDM PA. ii. The list contains all plausible alternatives that are considered to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM PA on the basis of local and sectoral knowledge. iii. The alternatives comply with all applicable and enforced legislation.	Para. 114	Confirmed	**OK**
B.5	**Investment analysis (Para. 117-123)**			
B.5.1	Confirm whether the investment analysis is used to demonstrate the additionality of the CDM PA.	Para. 117	NA	**NA**
B.5.2	Confirm that the latest version of the "Guidelines on the assessment of investment analysis" been applied for assessment.	Para. 118	NA	**NA**
B.5.3 (a) (b) (c)	**<Alternatives >** Confirm that the PA is not the most economically or financially attractive alternative, or that it is not economically or financially feasible without CDM. (a) Confirm that the PA would produce no financial or economic benefits other than CDM-related income. Confirm that the costs for the PA were documented. Confim that there is at least one alternative which is less costly than the PA. (b) Confirm that the PA is less economically or financially attractive than at least one other credible and realistic alternative. (c) Confrm that the financial returns of the proposed PA would be insufficient to justify the required investment.	Para. 119	NA	**NA**
B.5.4 B.5.4 (a) (b) (c)	**<Accuracy >** Confirm that the accuracy of financial calculations for investment analysis was verified with the following means of validation. (a.1) Confim that the suitability of the financial indicator selected by the PP is assessed. (a.2) Confirm that thorough assessment of all parameters and assumptions used in calculating such financial indicators was conducted. (a.3) Confirm that the accuracy and suitability of these parameters were determined using available evidence and expertise in relevant accounting practices. (b) Confirm that the parameters are cross-checked against third-party or publicly available sources, such as invoices or price indices. (c) Confirmthat the FSR, public announcements and annual financial reports related to the PA and the PP	Para. 120	NA NA NA	**NA** **NA** **NA**

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	are as appropriate.			
(d)	(d) Confirm that the correctness of computations carried out and documented by thePP are adequate.		NA	**NA**
(e)	(e.1)Confirm that the suitablity of selected variations in sensitivity analysis is adequate. (e.2) Confirm that the suitablity of conditions and ranges for selected variations in sensitivity analysis are adequate. (e.3) Confirmthat the likelihood of the conditions for variations in sensitivity analysis are adequate.		NA	**NA**
B.5.5	**<Bench mark>** Confirm that the suitability of benchmark applied in the investment analys is confirmed with the following means.	Para. 121	Investment analysisas a conceptual are demonstrated in the PoA-DD	**CL-3**
(a)	(a) Confirm that the type of benchmark applied is suitable for the type of financial indicator presented.		NA	**NA**
(b)	(b) Confim that risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity.			
(c)	(c) Confirmthat it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark.			
B.5.6	**<FSR >** Confirm that the PP rely on values from FSR that are approved by national authorities for PA.	Para. 122	Confirm the base report	**CL-2**
B.5.7	If yes, confirm the suitability of values from FSR with the following means of validation.			
(a)	(a.1) Confirm that the FSR is the basis for the decision to proceed with the investment in the project.		Confirm the base report	**CL-2**
	(a.2) Confirm that the period of time between the finalization of the FSR and the investment decision is sufficiently short.		Confirm the base report	**CL-2**
	(a.3) Confirm that it is unlikely in the context of the underlying PA that the input values would have materially changed..		Confirm the base report	**CL-2**
(b)	(b) Confirm that the values used in the PDD and associated annexes are fully consistent with the FSR.			**CL-2**
(c)	If no, (the inconsistencies occurred), confirm that the appropriateness of the values in PDD is assessed.		Confirm the base report	**CL-2**
B.5.7 (c)	(c.1) Confirm that the input values from the FSR are valid and applicable at the time of investment decision.		Confirm the base report	**CL-2**
	(c.2) Confirm that this is confirmed on the basis of specific local and sectoral expertise,by cross-checking or other appropriate means.		Confirm the base report	**CL-2**
B.6	**Barrier analysis (Para. 124-127)**			
B.6.1	Confirm that barrier analysis is used to demonstrate the additionality of the proposed CDM PA.	Para. 124	NA	**NA**
B.6.2	If yes (barrier analysis is used), Confirm whether the PA faces barriers that:	Para. 124	NA	**NA**

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
(a) (b)	(a) prevent the implementation of this type of proposed PA. (b) do not prevent the implementation of at least one of the alternatives..		NA	**NA**
B.6.3 (a) (b)	Confirm whether there are issues that have direct impact on the financial returns of the PA other than: (a) risk related barriers, for example risk of technical failure, that could have negative effects on financial performance. (b) barriers related to the unavailability of sources of finance for thePA. If yes, confime that these issues cannot be considered as barrires and shall be assessed by investment analysis.	Para. 125	NA	**NA**
B.6.4 (a)	Confirm that following two-step process are applied to assessing the barrier analysis . (a) Confirm that the barriers are real through the following means. • Confirm that the barriers listed in the PDD exist by using the available evidence and/or conducting interviews with relevant individuals (including members of industry associations, government officials or local experts if necessary). • Confirm that the existence of barriers is substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics. • Confirm that the existence of a barrier is substantiated only by the opinions of the project participants. If yes, this barrier can not be considered as adequately substantiated. - If it is considered, on the basis of its sectoral or local expertise, that a barrier is not real or is not supported by sufficient evidence, confirm that it shall raise a CAR to have reference to this barrier removed from the project documentation.	Para. 126	NA	**NA**
(b)	(b) Confirm that the barriers prevent the implementation of the PA but not the implementation of at least one of the possible alternatives:through the following means. • Confirm, by appling the local and sectoral expertise, that a barrier or set of barriers would prevent the implementation of the PA. • Confirm that a barrier or set of barriers would not equally prevent implementation of at least one of the possible alternatives, in particular the identified baseline scenario.	Para. 126	NA	**NA**
B.7	**Common practiceanalysis (Para. 128-130)**			
B.7.1	Confirm that a common practice analysis is used to demonstrate the additionality of the proposed CDM PA. If yes (a common practice analysis is used),	Para. 128 Para. 129	Investment analysisas a conceptual are demonstrated in the PoA-DD	**CL-3**
B.7.2 (a)	Confirm that the PP have conducted a common practice analysis. (a) Confirm, by using official sources and local and sectoral expertise, that:		Investment analysisas a conceptual are demonstrated in the PoA-DD	**CL-3**

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	• the geographical scope (e.g. the defined region) of the common practice analysis is appropriate for the assessment of common practice related to the PA's technology or industry type. • for certain technologies, the relevant region for assessment will be local and for others it may be transnational/global. • the defined region other than the entire host country was chosen. If, yes confirm that the explanation of why this region is more appropriate.		Investment analysisas a conceptual are demonstrated in the PoA-DD	**CL-3**
(b)	(b) Confirm that similar and operational projects (e.g. using similar technology or practice), other than project activities, have been undertaken in the defined region.			
(c)	(c) Confirm that similar and operational projects, other than project activities, are already "widely observed and commonly carried out" in the defined region. If yes for above (b) or (C), confirm that there are essential distinctions between the proposed PA and the other similar activities.			
B.7.3	Confirm that the common practice analysis is assessed by applling the latest version of "Guideline for Common Practice".	Tool for Additionality	Investment analysisas a conceptual are demonstrated in the PoA-DD	**CL-3**
B.7.4	Confirm that the stepwise approach for Common Practice in the Guideline is applied as follows. • Step 1: Calculateapplicable output range as +/-50% of the design output or capacity of the PA. • Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculated in Step 1, as the PA and have started commercial operation before the start date of the project. Note their number N_{all}. Registered CDM project activities shall not be included in this step. • Step 3: Within plants identified in Step 2, identify those that apply technologies different that the technology applied in the proposed PA. Note their number N_{diff}. • Step 4: Calculate factor $F=1-N_{diff}/N_{all}$ representing the share of plants using technology similar to the technology used in the proposed PA in all plants that deliver the same output or capacity as the proposed PA. • The proposed PA is a "common practice" within a sector in the applicable geographical area, if the factor F is greater than 0.2 and $N_{all}-N_{diff}$ is greater than 3.		Investment analysisas a conceptual are demonstrated in the PoA-DD	**CL-3**
B.8	**Eligibility criteria for inclusion of a CPA in the PoA**			
B.8.1	Confirm that the description is provided on the eligibility criteria.	PoA GL	Evidence to be	**CL-5**

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
			clarified	
B.8.2	Confirm that the CME developed eligibility criteria for inclusion of a CPA under the PoA and shall include these criteria in the PoA design documents (e.g. CDM-PoA-DD, CDM-SSC-PoA-DD).	Std Add. Para.13	Evidence to be clarified	**CL-5**
B.8.3	Confirm that the eligibility criteria shall cover as a minimum the following	Std Add. Para.13		
(a)	(a)The geographical boundary of the CPA including any time-induced boundary3 consistent with the geographical boundary set in the PoA;		Confirmed	**OK**
(b)	(b) Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);		Evidence to be clarified	**CL-5**
(c)	(c) The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications		Confirmed	**OK**
(d)	(d) Conditions to check the start date of the CPA through documentary evidence;			
(e)	(e) Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs;			
(f)	(f) The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section A above;			
(g)	(g) The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;			
(h)	(h) Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance			
(i)	(i) Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid-connected/off-grid) and distribution mechanisms (e.g. direct installation);			
(j)	(j) Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys;			
(k)	(k) Where applicable, the conditions that ensure that every CPA in aggregate meets the small-scale or microscale threshold criteria6 and remains within those thresholds throughout the crediting period of the CPA;			
(l)	(l) Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories.			
B.8.4	Confirm that the eligibility criteria are verifiable.	Std Add.15.	Confirmed	**OK**
B.8.5	Determine whether the eligibility criteria are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA.	Std Add.16.	Confirmed	**OK**
B.8.6	Confirm thatthe CPAs shall be included in the PoA on the basis of the DOE's confirmed eligibility of CPAs where applicable undertaking sample-based checks in accordance with the approved guidelines/standard from the Board.	Std Add.19	Confirmed	**OK**

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
B.8.7	For PoAs that include combinations of technologies/measures and/or methodologies, confirm thatdistinct eligibility criteria are developed per combination as specified in paragraph 29(a) to 29(d), in Section C below.	Std Add.20.	Confirmed	**OK**
B.9	**Application of methodologies**			
B.9.1	Confirm that the description is provided on the technology/measures and indicate the methodology chosen.	PoA GL	Confirmed	**OK**
Section C.	**Management system**			
C.1	Confirm that the description is provided on the management system.	PoA GL	Management system to be established according to the Standard for PoA	**CL-1**
C.2	Confirm whether the management system described in the PoA design document (CDM PoA-DD) in accordance with the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities.	Std Add. Para. 186	Ditto	**CL-1**
C.3	Confirm whether 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.	Std Add Para. 17	Ditto	**CL-1**
C.4 (a) (b) (c) (d) (e) (f) (g)	Confirm that the CME develop and implement a management system that includes the following made available to the DOE at the time of validation of the PoA: (a) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies (b) Records of arrangements for training and capacity development for personnel (c) Procedures for technical review of inclusion of CPAs (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); (e) Records and documentation control process for each CPA under the PoA (f) Measures for continuous improvements of the PoA management system (g) Any other relevant elements.	Std Add Para. 17		
C.5	Confirm whether the elements of the management system referred to in paragraph 17 are appropriate as part of the validation of the PoA or as part of the validation of the CPA inclusion.	Std Add Para. 18	Ditto	**CL-1**
Section D.	**Duration of PoA**			
D.1.	**Start date of PoA**			
D.1	Confirm the start date is described.	PoA GL	Confirmed	**OK**
D.2.	**Length of the PoA**			

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NA: Not Applicable, Tbv:To be verified, PDD GL: PDD Guidelines, PA: Project Activities,PP: Project Participants

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
D.2	Confirm that the length of the PoA is described in years.	PoA GL	Confirmed	**OK**
Section E.	**Environmental impacts**			
E.1.	**Level at which environmental analysis is undertaken**			
E.1.1	Confirm whether the environmental analysis is performed at the PoA and/or the CPA level.	PoA GL	PoA level.	**OK**
	If yes, Confirm that the environmental analysis is performed for the CPA.	PoA GL	Documented evidence is requested	**CL-4**
E.1.2	Confirm that the PP has conducted an analysis of the environmental impacts of the PA, including transboundary impacts,	Para. 134	Documented evidence is requested	**CL-4**
E.1.3	Determine that those impacts are considered significant by the project participants or the host Party.	Para. 134	Documented evidence is requested	**CL-4**
E.2.	**Analysis of the environmental impacts**			
E.2.1	Confirm whether the analysis of the environmental impacts is undertaken or not.	PoA GL	Documented evidence is requested	**CL-4**
E.2.2	If yes, Confirm the description on the analysis for the PoA.	PoA GL		
E.3.	**Environmental impact assessment**			
E.3.1	Confirm if the EIA is required or not.	PoA GL	Documented evidence is requested	**CL-4**
E.3.2	If EIA required, Confirm that the conclusions of EIA is provided.	PoA GL		
E.3.3	Confirm that the EIA is required by the host Party, in accordance with the host Party's procedures.	Para. 135	Documented evidence is requested	**CL-4**
E.3.4	Confirm that the requirement for the EIA is confirmed by means of a document review and/or using local official sources and expertise.	Para. 136	Documented evidence is requested	**CL-4**
Section F.	**Local stakeholder comments**			
F.1.	**Solicitation of comments from local stakeholders**			
F.1.1	Confirm whether the local stakeholder consultation process is performed at the PoA and/or the CPA level.	PoA GL	PoA level.	**OK**
	If at PoA level, Confirm that the description is provided on process for local stakeholders in PoA-DD.	PoA GL		
F.1.2	Confirm that the PP has completed a local stakeholder consultation process.	Para. 138	Ditto	**NA**
F.1.3	Confirmthat the due steps were taken to engage stakeholders and solicit comments for thePA.	Para. 138	Ditto	**NA**
F.1.4	Confirm, by means of document review and interviews with local stakeholders asappropriate, that : (a) comments have been invited from local stakeholders that are relevant for the PA.	Para. 139	Ditto	**NA**
F.2.	**Summary of comments received**			

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NA: Not Applicable, Tbv:To be verified, PDD GL: PDD Guidelines, PA: Project Activities,PP: Project Participants

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
F.2.1	Confirm that the summary is provided on stakeholders comments.	PoA GL	NA, To be confirmedCPA001 level	**OK**
F.2.2	Confirm, by means of document review and interviews with local stakeholders asappropriate, that : (a) comments have been invited from local stakeholders that are relevant for the PA.	Para. 139	Ditto	**OK**
F.3.	**Report on consideration of comments received**			
F.3.1	Confirm that the consideration is provided for all comments received.	PoA GL	NA	**NA**
Section G.	**Approval and authorization**			
G.1	Confirm whether the LoA is available at the time of submitting the PoA-DD to the DOE.	PoA GL	No, latter, LoAs to be provided	**CAR-1**
G.2	If yes, Confirm that the LOA is provided with following information. (a) approval of the: Party(ies) (b) authorization for CME from each Party.	PoA GL	NA	**NA**
SectionH.	**Modalities of communications**			
H.1	Confirm that the MoC statement included the corporate identity of all project participants and focal points, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories..	Para 53	MoC to be provided	**CAR-2**
H.2	Confirm in writing that the MoC statement complies with all relevant forms and requirements.	Para 61		
	Check for CPA-DD-Generic			
PART II.	**Generic component project activity (CPA)**			
1	Confirm that this section is used to demonstrate the application of the PoA framework to implement generic CPAs and to demonstrate that each type of CPA meets the requirements. Where multiple technologies/measures and/or multiple methodologies are being applied, confirm that the demonstration of the application of the PoA framework to implement generic CPAs must be done for each of the combinations of technologies/measures and/or methodologies. Therefore, repeat all of Part II of these guidelines for each of the combination of technologies/measures and/or methodologies.	PoA GL	Confirmed	**OK**
Section A.	**General description of a generic CPA**			
A.1.	**Purpose and general description of generic CPAs**			
A.1.1	Confirm that the description is provided on purpose of generic CPA.	PoA GL	Confirmed	**OK**
Section B.	**Application of a baseline and monitoring methodology**			
B.1.	**Reference of the approved baseline and monitoring methodology(ies) selected**			

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
B.1.1	Confirm that thefollowing reference of the **methodology** is exact.	PoA GL	Confirmed	**OK**
(i)	(i) reference number of the methodology.	PoA GL		
(ii)	(ii) title of the methodology.	PoA GL		
(iii)	(iii) version number of the methodology	PoA GL		
B.1.1	Confirm that thefollowing reference of the **Tool** is exact.	PoA GL	Tool related SCC to be clarified	**CAR-3**
(i)	(i) title of the Tool	PoA GL		
(ii)	(ii) version number of the Tool	PoA GL		
B.2.	**Application of methodology(ies)**			
B.2.1	Confirm that the description is provided on application of methodology(ies) for generic CPA.	PoA GL	multiple methodologies are applied	
B.2.	**Application of multiple methodologies for programmes of activities**			
B.2.2	If the multiple methodologies are applied, confirm that the combinations of technologies/measures and/or methodologies for a PoA are eligible with demonstration on that there are no cross effects between the technologies/measures applied. ([1] Combinations of approved methodologies contained in the "*"General guidelines to SSC CDM methodologies"*" may be applied without further assessment of cross effects, while other combinations can be applied with the analysis of cross effects.)	Std Add. Para.28.	NA multiple methodologies are not applied	**NA**
	Where such cross effects do exist, confirm that the CME proposes the methods to account for such cross effects using the "Procedures for requests to the executive board for deviation from an approved methodology" so as to ensure that the calculation of emission reductions is accurate.		NA	**NA**
B.2.3	In other case of above combination,			
B.3	**Sources and GHGs**			
B.3	Confirm that the description is provided in the table on the sources and GHGs in generic CPA boundary.	PoA GL	Confirmed	**OK**
B.4	**Description of baseline scenario**			
B.4	Confirm that the description is provided on the baseline scenario for generic CPA.	PoA GL	Confirmed	**OK**
B.5	**Demonstration of eligibility for a generic CPA**			
B.5.1	Confirm that the description is provided for the demonstration on how generic CPA meets the eligibility criteria of the PoA.	PoA GL	Documented evidence is requested	**CL-5**
B.5.2	Confirm that the demonstration of the usability to assess the inclusion of CPAs in the generic CDM-CPA-DD.			
B.6	**Estimation of emission reductions of a generic CPA**			

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TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
B.6.1.	**Explanation of methodological choices**			
B.6.1.1	Confirm that the description is provided for the explanation on how the methodological steps, in the selected methodology, are applied to generic CPA.	PoA GL	Confirmed	**OK**
B.6.1.2	Confirm that the explanation was indicated on how the methods or methodological steps in the selected methodology are applied for calculating baseline emissions, project emissions, leakage and emission reductions.	PDD GL	Confirmed	**OK**
B.6.1.3	Confirm that the steps taken and the equations and parameters applied in the PDD to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected methodology including applicable tool.	Para. 96		
B.6.1.4	Confirm that it is clearly stated in the PDD that the proper equations are used in calculating emission reductions.	PDD GL		
B.6.1.5	Confirm that the methodology allows for selection between options for equations or parameters. If yes, confirm that adequate justification has been provided for selection. (based on the choice of the baseline scenario, context of the PA and other evidence provided) .	Para. 97		
B.6.1.6	Confirm that the correct equations and parameters have been used, in accordance with the methodology selected including applicable tool.	Para. 97		
B.6.1.7	Confirm that the justification given in the PDD for the choice of data and parameters used in the equations is appropriate.	Para. 98		
B.6.1.8	Confirm that data and parameters will not be monitored and will remain fixed throughout the crediting period.	Para. 98		
B.6.1.9	If yes, confirm that; ◆ all data sources and assumptions are appropriate. ◆ calculations are correct as applicable to the PA. ◆ will result in an accurate or otherwise conservative estimate of the emission reductions.		Confirmed	**OK**
B.6.1.10	Confirm that data and parameters will be monitored or estimated on implementation and hence become available only after validation of the PA. If yes, confirm that the estimates provided in the PDD for these data and parameters are reasonable.	Para. 98	Confirmed	**OK**
B.6.2	**Data and parameters that are to be reported ex-ante**			
B.6.2.1	Confirm that the tables are provided with the parameters for not monitoring.	PoA GL	Checked	**OK**
B.6.3	**Ex-ante calculations of emission reductions**			
B.6.3.1	Confirm that the blank tables are provided.	PoA GL	Checked	**OK**
B.6.3.2	Confirm that the transparent ex ante calculation of baseline emissions, project emissions (or, where	PDD GL		

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	applicable, direct calculation of emission reductions) and leakage expected during the crediting period is provided.			
B.6.3.3	Confirm that the sample calculation for each equation used, substituting the values used in the equations is provided.	PDD GL		
B.6.3.4	Confirm that the relevant electronic spreadsheets for ex ante calculation are provided.	PDD GL	Checked	**OK**
B.6.3.5	Confirm that the additional background information and/or data are described in Appendix 4 adequately.	PDD GL		
B.6.4	**Summary of the ex ante estimation of emission reductions:**			
B.6.4.1	Confirm that the summary of the results of the ex ante estimation of emission reductions for all years of the crediting period is provided in the specified Table adequately.	PDD GL	Estimation calculation is in CPA001	**NA**
B.6.4.2	Confirm that the crediting year and periods in the Table are consistent with those indicated in C.2.2. and C.2.3..	PDD GL	ditto	**NA**
B.7	**Application of the monitoring methodology and description of the monitoring plan**			
B.7.1.	**Data and parameters to be monitored by each generic CPA**			
B.7.1.1	Confirm that the tables are provided with the parameters for monitoring.	PoA GL	Confirmed	**OK**
B.7.1.2	Confirm that the specific information on how the data and parameters that need to be monitored would actually be collected during monitoring is indicated in the tables in Section B.7.1. of PDD adequately.	PDD GL	Confirmed	**OK**
B.7.1.3	Confirm that any relevant further background documentation is provided in Appendix 5.	PDD GL	Confirmed	**OK**
B.7.2.	**Description of the monitoring plan for a generic CPA**			
B.7.2.1	Confirm that the description is provided on the monitoring plan for a generic CPA.	PoA GL	Confirmed	**OK**
B.7.2.2	Confirm that the detailed description of the monitoring planof the PA is developed in accordance with the monitoring requirements of the selectedmethodology is provided in sections B.7.1, B.7.2 and B.7.3.	PDD GL Para. 131	Confirmed	**OK**
B.7.2.3 (a) (i) (ii) (iii)	Confirm thatthe following two-step process is applied to assess compliance with the requirement of methodology. (a) Confirm the compliance of the monitoring plan with the approved methodology and theapplicable tool, (i) Confirm that the list of parameters required by the selected approved methodology including applicable tool by means of document review are Identified. (ii) Confirm that the description of the monitoring plan contains all necessary parameters. (iii) Confirm that the means of monitoring described in the plan complies with the requirements of the methodology including applicable tool.	Para. 132	Confirmed	**OK**
(b)	(b) Confirm the implementation of the plan,			

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	◆ by means of review of the documented procedures. ◆ by the interviews with relevant personnel. ◆ by any physical inspection of the project site.		Confirmed	**OK**
(i)	(i) Confim that the monitoring arrangements described in the monitoring plan are feasible within the project design.		Confirmed	**OK**
(ii)	(ii) Confim that the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the PA can be reported ex post and verified.			
B.7.3	**Sampling plan**			
B.7.3.1	Confirm that the description of the sampling plan is provided in Section B.7.2. of PDD. (If data and parameters monitored in section B.7.1 are to be determined by a sampling approach)	PDD GL	NA	**NA**
B.7.3.2	Confirm that the parameter values are estimated by sampling in accordance with the requirements in the applied methodology separately and independently for each of the CPAs included in a PoA except when a single sampling plan covering a group of CPAs is undertaken applying 95/10confidence/precision for the sample size calculation.	Std Sampling Para. 19.	NA	**NA**
B.7.3.3	Determine whether the proposed sampling plans provide parameter value estimating in an unbiased and reliable manner including determining;	Std Sampling		
(a)	(a) Whether the proposed sample size and sampling method is adequate to achieve the minimum confidence/precision requirements. DOEs shall be able to reproduce the sample size calculation in order to validate the proposed sample size.	Para. 20.	NA	**NA**
(b)	(b) Whether the proposed sampling plan will ensure that samples are randomly selected and are representative of the population.			
B.7.3.4	Verify whether the PP has implemented the sampling effort and surveys according to the validated sampling plans. The verification includes determining	Std Sampling	NA	**NA**
(a)	(a) Whether the required confidence/precision has been met;	21.		
(b)	(b) Whether the selected sample was representative of the population.			
B.7.3.5	As one means of validation/verification, confirm that sampling approach will be applied when the PP have not applied a sampling approach provided the indicated level of assurance in paragraphs below is met. This is for example the case of a multi-site CDM project activities or CDM PoAs applying small-scale or large scale methodologies.	Std Sampling 22.	NA	**NA**
B.7.3.6	Confirm that the acceptance sampling will be used as described in below steps as part of validation/verification activities to meet the requirements of paragraph 20 and 21 above:	Std Sampling		
(a)	(a) Take a random sample of the PPs sample records;	23.	NA	**NA**
(b)	(b) Check. using own professional judgment . the acceptability (or otherwise) of the data for each record in the PPs sample records, and then;			

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
(c)	(c) Based on the number of records where there is agreement, determine if the PPs sample records meet the requirements.			
B.7.3.7 (i) (ii)	Confirm that the size of the sample for field/onsite check is specified in advance, using own professional judgment: (i) Acceptable quality level or the Level of Assurance, i.e. the proportion of discrepancies between the PPs record and DOE record that are acceptable, e.g. 1%; (ii) The proportion of discrepancies between the PPs record and DOE record that are unacceptable, e.g. 10%.	Std Sampling 24.	NA	**NA**
B.7.3.8 (i) (ii)	Confirm that the maximum errors associated with the determination indicated in paragraph 24 shall remain at levels indicated below: (i) A 5% chance that the DOE will wrongly reject the PPs records (i.e. reject a set of records of acceptable quality);16 (ii) A 5% chance that the DOE will wrongly accept the PPs records (i.e. accept a set of records which is unacceptable)	Std Sampling 25.	NA	**NA**
B.7.3.9	Determine the following parameters (n, c) using provisions under 24 to 25 the n: the size of the sample; c: the acceptance number If the number of discrepant records in the sample is observed greater than c, then the PPs set of records is not accepted. If the number of discrepant records is equal to or less than c then the PPs set of records is accepted.	Std Sampling 26.	NA	**NA**
B.7.4.	**Other elements of monitoring plan**			
B.7.4.1	Confirm that the operational and management structure including project operator in order to monitor emission reductions are described in Section B.7.3. of PDD.	PDD GL	Checked	**OK**
B.7.4.2	Confirm that the monitoring plan will be implemented and any leakage generated by the PA is described.	PDD GL	Monitoring Manual to be provided	**FAR-1**
B.7.4.3	Confirm that the responsibilities and institutional arrangements for data collection and archiving are indicated in Section B.7.3. of PDD.	PDD GL	Checked	**OK**
Appendix 1	**Contact information on entity/individual responsible for the PoA**			
AP.1	Confirm that the following mandatory fields are filled in the table.	PoA GL	Checked	**OK**
	◆ Organization	PoA GL		
	◆ Street/P.O. Box	PoA GL		
	◆ City, Postcode	PoA GL		
	◆ Country, Telephone	PoA GL		
	◆ Fax,	PoA GL		

TABLE-1 REQUIREMENTS CHECKLIST(POA) **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 12 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	◆ e-mail	PoA GL		
	◆ Name of contact person	PoA GL		
.	Confirm the consistency between the organization listed in above table and that in section A.4.	PoA GL		
Appendix 2	**Affirmation regarding public funding**			
AP.2	Confirm the description on no public funding from Parties for PoA.	PoA GL	Checked	**OK**
(a)	If public fund has received for PoA, (a)Provide information on Parties providing public funding;	PoA GL	NA	**NA**
(b)	(b)Attach in Appendix 2: the affirmation obtained from such Parties		NA	**NA**
Appendix 3	**Application of methodology(ies)**			
AP.3	Confirm that further background information on the applicability of the selected methodology(ies) is provided.	PoA GL	Checked	**OK**
Appendix 4	**Further background information on ex ante calculation of emission reductions**			
AP.4	Confirm that further background information on the ex-ante calculation of emission reductions is provided, and that this may include data, measurement results, data sources, etc.	PoA GL	Checked	**OK**
Appendix 5	**Further background information on the monitoring plan**			
AP.5	Confirm that further background information used in the development of the monitoring plan is provided, and that this may include tables with time series data, additional documentation of measurement equipment, procedures etc. ◆ revision of existing methodologies to the Board ◆ publication in a newspaper ◆ interviews with the DNA ◆ earlier correspondence on the project with the DNA or the secretariat.	PoA GL PoA GL PoA GL	NA	**NA**

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific **(OK/No/NA/Tbv)**

PoA-DD Section	Check Points (according to EB 66 Annex 16" Guidelines for Completing The Component project Activity Design Document Form"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	General guidelines			
1.	Confirm that the CPA-DD Form applies **version 02.0 of F-CDM-CPA-DD.**(Guideline Para.8)	CPA GL		
2.	Confirm that the CPA-DD is completed **in English.** (all attached documents must be in English) (Guideline Para.13)	CPA GL		

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/Tbv)

PoA-DD Section	**Check Points** (according to EB 66 Annex 16" Guidelines for Completing The Component project Activity Design Document Form"(Ver.01.0)	Reference GL,DD	Check Comment	CAR, CL, No.
3.	Confirm that the CPA-DD is completed using the same format **without modifying its font, headings or logo,** and without any other alteration to the form.(Guideline Para. 14)	CPA GL	Checked	**OK**
4.	Confirm that the tables and their columns in the CPA-DD are **not modified or deleted.**(Guideline Para. 15)	CPA GL		
5.	Confirm that the **blanks are left intentionally** for the "not applicable section" of the CPA-DD(Guideline Para. 16)	CPA GL	Checked	**OK**
	Specific guidelines			
Section A.	**General description of CPA**			
A.1.	**Title of the proposed or registered PoA**			
A.1	Confirm that the reference and title of the PoA to which this CPA is included.	CPA GL	Confirmed	**OK**
A.2.	**Title of the CPA**			
A.2	Confirm the followings related to the title of the PoA.	CPA GL		
(a)	(a) the title of the CPA and the unique identification of the CPA.	CPA GL	Checked	**OK**
(b)	(b) the current version number of the CPA-DD.	CPA GL		
(c)	(c) the date the CPA-DD in DD/MM/YYYY.	CPA GL		
A.3	**Description of the CPA**			
A.3	Confirm that the description is provided on the technology and/or measures for the CPA.	CPA GL	Confirmed	**OK**
A.4	**Entity/individual responsible for CPA**			
A.4	Confirm that the description is provided on the CPA implementers. (Name of PPs of PoA)	CPA GL	Confirmed	**OK**
A.5.	**Technical description of the CPA**			
A.5	Confirm that the description is provided on the technologies for the CPA.	CPA GL	Confirmed	**OK**
A.6.	**Party(ies)**			
A.6.1	Confirm that the Party(ies) CPA implementers (PPs) and involvement are listed in the table.	CPA GL	Confirmed	**OK**
A.6.2	Confirm that the "(host)" is indicated in the table.	CPA GL	Confirmed	**OK**
A.6.3	Confirm that the name of PPs are consistent with the contact information in Appendix 1	CPA GL	Confirmed	**OK**
A.7.	**Geographic reference or other means of identification**			
A.7	Confirm that the geographic reference is indicated for the CPA **(within one page)**.(e.g. map, registration number of GPS devices)	CPA GL	Confirmed	**OK**
A.8.	**Duration of the CPA**			
A.8.1.	**Start date of the CPA**			
A.8.1	Confirm the start date is described in DD/MM/YYYY how the start date was determined..	CPA GL	Confirmed	**OK**

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/Tbv)

PoA-DD Section	**Check Points** (according to EB 66 Annex 16" Guidelines for Completing The Component project Activity Design Document Form"(Ver.01.0)	**Reference GL,DD**	**Check Comment**	**CAR, CL, No.**
A.8.2.	**Expected operational lifetime of the CPA**			
A.8.2	Confirm that the expected operational lifetime of the CPA is described in years and months.	CPA GL	Confirmed	**OK**
A.9.	**Choice of the crediting period and related information**			
A.9	Confirm that the type of crediting period is chosen in fixed or renewable.	CPA GL	Confirmed	**OK**
A.9.1.	**Start date of the crediting period**			
A.9.1	Confirm that the expected start date of the crediting period of the CPA is described in DD/MM/YYYY.	CPA GL	Confirmed	**CL-6**
A.9.2.	**Length of the crediting period**			
A.9.2.1	Confirm that the length of the crediting period is decribed.	CPA GL	Documented evidence is requested	**CL-6 CL-7**
A.9.2.2	Confirm that the CPA is limited to the end date of the CPA.	CPA GL	Confirmed	OK
A.10.	**Estimated amount of GHG emission reductions**			
A.10.1	Confirm that thetable is completed by ; • the annual GHG emission reductions for each year of the crediting period • the annual average and the total GHG emission reductions over the chosen crediting period.	CPA GL	Documented evidence is requested	**CAR-4**
A.10.2	Confirm that thestart date and end date of crediting period are consistent with those dates in Section A.8.1.	CPA GL		
A.10.3	Confirm that thestart date and end date of crediting period are consistent with those dates in table of Section D.6.4.	CPA GL		
A.10.4	Confirm that thespread sheet of calculation of Emission Reduction	CPA GL		
A.11.	**Public funding of the CPA**			
A.11.1	Confirm the description on no public funding from Parties for CPA.	CPA GL	Confirmed	**OK**
A.11.2	If public fund has received for CPA, (a)Provide information on Parties providing public funding; (b)Attach in Appendix 2: the affirmation obtained from such Parties	CPA GL	NA	**NA**
A.12.	**Confirmation for CPA**			
A.12.1	Confirm the confirmation on that the CPA is not an individual registered CDM project nor a part of another registered CPA.	CPA GL	Confirmed	**OK**
Section B.	**Environmental analysis**			
B.1.	**Analysis of the environmental impacts**			
B.1.1	Confirm whether the analysis of the environmental impacts is undertaken or not.	CPA GL	Documented evidence is requested	**CL-8**
B.1.2	If yes, Confirm the description on the analysis for the CPA.	CPA GL		
B.2.	**Environmental impact assessment**			

CAR: Corrective Action Request, **CL**: Clarification Request, **FAR**: Forward Action Request,
NA: Not Applicable, Tbv:To be verified, PDD GL: PDD Guidelines, PA: Project Activities,PP: Project Participants

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/Tbv)

PoA-DD Section	**Check Points** (according to EB 66 Annex 16" Guidelines for Completing The Component project Activity Design Document Form"(Ver.01.0)	**Reference GL,DD**	**Check Comment**	**CAR, CL, No.**
B.2.1	Confirm if the EIA is required or not. If EIA required, Confirm the conclusions of EIA is provided.	CPA GL CPA GL	Documented evidence is requested	**CL-8**
B.2.2	Confirm that the EIA is required by the host Party, in accordance with the host Party's procedures.	Para. 135		
B.2.3	Confirm that the requirement for the EIA is confirmed by means of a document review and/or using local official sources and expertise.	Para. 136		
Section C.	**Local stakeholder comments**			
C.1.	**Solicitation of comments from local stakeholders**			
C.1.1	Confirm that the invitation process is provided on local stakeholders comments for the CPA.	CPA GL	Documented evidence is requested	**CL-9**
C.1.2	Confirm that the PP has completed a local stakeholder consultation process.	Para. 138		
C.1.3	Confirmthat the due steps were taken to engage stakeholders and solicit comments for thePA.	Para. 138		
C.1.4	Confirm, by means of document review and interviews with local stakeholders asappropriate, that : (a) comments have been invited from local stakeholders that are relevant for the PA.	Para. 139		
C.2	**Summary of comments received**			
C.2.1	Confirm that the summary is provided on stakeholders comments.	CPA GL	Documented evidence is requested	**CL-9**
C.2.2	Confirm, by means of document review and interviews with local stakeholders asappropriate, that : (a) comments have been invited from local stakeholders that are relevant for the PA.	Para. 139		
C.3.	**Report on consideration of comments received**			
C.3.1	Confirm that the consideration is provided for all comments received.	CPA GL		
Section D.	**Eligibility of CPA and estimation of emissions reductions**			
D.1.	**Title and reference of the approved baseline and monitoring methodology(ies) selected**			
D.1.1	Confirm that thefollowing reference of the **methodology** is exact. (i) reference number of the methodology. (ii) title of the methodology. (iii) version number of the methodology	CPA GL CPA GL CPA GL CPA GL	Confirmed	**OK**
D.1.2	Confirm that thefollowing reference of the **Tool** is exact. (i) title of the Tool (ii) version number of the Tool	CPA GL CPA GL CPA GL		
D.2.	**Application of methodology(ies)**			
D.2	Confirm that the description is provided on demonstration of compliance for applicability conditions of methodology.	CPA GL	Confirmed	**OK**
D.3.	**Sources and GHGs**			

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NA: Not Applicable, Tbv:To be verified, PDD GL: PDD Guidelines, PA: Project Activities,PP: Project Participants

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/Tbv)

PoA-DD Section	**Check Points** (according to EB 66 Annex 16" Guidelines for Completing The Component project Activity Design Document Form"(Ver.01.0)	**Reference GL,DD**	**Check Comment**	**CAR, CL, No.**
D.3	Confirm that the description is provided in the table on the sources and GHGs in generic CPA boundary.	CPA GL	Confirmed	**OK**
D.4.	**Description of the baseline scenario**			
D.4	Confirm that the description is provided on how the baseline scenario is identified for the CPA.	CPA GL		
--	**Demonstration of additionality for the CPA**		Confirm that the demonstration for CPA001 is required	**CAR-3**
--	**Identification of alternatives (Para. 113-116)**	**Para. 113-116**	NA	NA
--	**Investment analysis (Para. 117-123)**	**Para. 117-123**	Confirm that the demonstration for CPA001 is required	**CAR-3**
--	**Barrier analysis (Para. 124-127)**	**Para. 124-127**	NA	NA
--	**Common practiceanalysis (Para. 128-130)**	**Para. 128-130**	Confirm that the demonstration for CPA001 is required	**CAR-3**
D.5.	**Demonstration of eligibility for a CPA**			
D.5	Confirm that the description is provided on how specific CPA meets the eligibility criteria of the CPA.	CPA GL	Criteria to be checked	**CL-10, CL-11**
D.6.	**Estimation of emission reductions**			
D.6.1.	**Explanation of methodological choices**			
D.6.1	Confirm that the description is provided on how the methodological steps, in the selected methodology, are applied to specific CPA.	CPA GL	Confirmed	**OK**
D.6.2.	**Data and parameters that are to be reported ex-ante**			
D.6.2	Confirm that the description is provided on the data and parameters not for monitoring in the Tables.	CPA GL	Confirmed	**OK**
D.6.3.	**Ex-ante calculation of emission reductions**			
D.6.3	Confirm that the ex-ante calculation is provided on emission reductions.	CPA GL	Data and values to be checked	**CL-12 CL-14**
D.6.4.	**Summary of the ex-ante estimates of emission reductions**			
D.7.	**Application of the monitoring methodology and description of the monitoring plan**			
D.7.1.	**Data and parameters to be monitored**			
D.7.1	Confirm that the description is provided on the data and parameters for monitoring in the Tables.	CPA GL	Calibration for the meters to be checked	**CL-13**
D.7.2.	**Description of the monitoring plan**			
D.7.2	Confirm that the description is provided on the monitoring plan for a specific CPA.	CPA GL	Calibration for the	**CL-13**

CAR: Corrective Action Request, **CL**: Clarification Request, **FAR**: Forward Action Request,
NA: Not Applicable, Tbv:To be verified, PDD GL: PDD Guidelines, PA: Project Activities,PP: Project Participants

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/Tbv)

PoA-DD Section	**Check Points** (according to EB 66 Annex 16" Guidelines for Completing The Component project Activity Design Document Form"(Ver.01.0)	**Reference GL,DD**	**Check Comment**	**CAR, CL, No.**
			meters to be checked	
Section E.	**Approval and authorization**			
E.1	Confirm whether the LoA is available at the time of submitting the CPA-DD to the DOE.	CPA GL	No, latter	--
	If yes, Confirm that the LOA is provided with following information. (a) approval of the: Party(ies) (b) authorization for CME from each Party.	CPA GL	NA	**CAR-1**
Appendix 1	**Contact information on entity/individual responsible for the CPA**			
AP.1	Confirm that the following mandatory fields are filled in the table. ◆ Organization ◆ Street/P.O. Box ◆ City, Postcode ◆ Country, Telephone ◆ Fax, ◆ e-mail ◆ Name of contact person	CPA GL	Checked	**OK**
.	Confirm the consistency between the organization listed in above table and that in section A.4.	CPA GL		
Appendix 2	**Affirmation regarding public funding**			
AP.2	Confirm the description on no public funding from Parties for CPA.	CPA GL	Checked	
	If public fund has received for CPA, (a)Provide information on Parties providing public funding; (b)Attach in Appendix 2: the affirmation obtained from such Parties	CPA GL	NA	**OK**

TABLE-3Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD, CPA-generic, CPA-specific)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CAR	**for Table-1 PoA-DD, CPA-DD-generic**			
CAR-1	**<LoA>** (1) Corrective action is requested that the LoA from Kenya of Host Party shall be provided.	**PART I Section G.**	LoA from Kenya was provided.	LoA from Kenya/2.1/ as Host Party was received and confirmed its validity. **OK CAR-1(1) was closed.**
	<LoA> (2) Corrective action is requested that the LoA from UK shall be provided..	Ditto	LoA from UK was provided.	LoA from UK/2.2/ as Host Party was received and confirmed its validity. **OK CAR-1 (2) was closed.**
CAR-2	**<MoC>** Corrective action is requested that the MoC from the PP shall be provided.	**PART I Section H.**	MoC was provided. Please refer to dropbox folder sent to JCI on 20th Aug 2012	MoC /2.5/ was received and confirmed its validity. **OK CAR-2 was closed.**
CAR-3	**<Selection of Tools applied>** Tool referred by the Methodology to be applied. "Additionality Tool" or "Combined Tool for Additionality" to demonstrate additionality shall be applied according to the AM0067,.		Methodological tool has been applied in the revised PoA-DD and all related description have been reflected. The project applies the following: • Combined tool to identify baseline scenario and demonstrate additionality", Version 05.0.0, EB 70 Annex09; • "Tool to calculate emission factor for an electrical system", Version 03.0.0 EB 70 Annex22. Please find the revised PoA DD in the dropbox folder Please refer to dropbox folder sent to JCI on 20th Aug 2012	The correction in revised PoA-DD and CPA-DD are done appropriately. **OK CAR-3 was closed.**
CAR	**for Table-2 CPA-DD-specific**			
CAR-4	**< ER calculation>** **<Spread sheet for ER calculation >** (1) Corrective action is requested that the active spreadsheets for ER calculation shall be provided.		Active Spread sheet for calculation of CERs was provided. Please refer to dropbox folder sent to JCI on 2nd Aug 2012	Spreadsheet of ER calculation/9.2/ was received and confirmed. **OK CAR-4 (1) was closed.**

TABLE-3Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD, CPA-generic, CPA-specific)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CAR-4 (Continued)	**< ER calculation>** **<Spread sheet for Grid-EF calculation >** (2) Corrective action is requested calculation of EF for Ghana national grid that active spreadsheets for calculation of EF for Kenya national grid shall be provided.		Active spread sheets of calculation for BM and OM were provided. The BM and OM have been calculated using a tool developed through a United Nation Development programme (UNDP) funded tool. The tool applies the Dispatch data analysis OM method since hourly data is readily available at KPLC. Please refer to dropbox folder sent to JCI on 20th Aug 2012	Spreadsheet of Grid-EF calculation/9.1/ was received and confirmed. **OK CAR-4 (2) was closed.**
	(3) It shall be clarified whether the data of 2011 is available for calculation BM and OM.		Grid emission factor calculation has been updated with 2010 data. 2011 data was not available at the time of GSC.	Further clarification were received and confirmed that the 2010 data is the latest vintage available. **OK CAR-4 (3) was closed.**
CL	**forTable-1 PoA-DD, CPA-DD-generic**			
CL-1	**<Management System/PoA-DD>** Clarification is requested for the further information on Management System according to the Standard for PoA. (1) Explanation on Management System in PoA-DD is not sufficient complying with the Standards for PoA.		PoA-DD was revised on explanation for Management system in line with PoA Standard. The CME has updated the Management System under Section C of the PoA-DD. In addition, the CME has submitted a copy of the *"CPA Inclusion Management System"* that describes management system of the PoA to the DOE on 11the August, please refer to the dropbox folder.	Revised PoA-DD was received and confirmed as appropriate. OK **CL-1(1) was closed**
	(2) The PP of UK to be clarified.		Yes, as mentioned in section A.4, Standard Bank Plc is the project participant.	JCI confirmed that Standard Bank Plc is identified as the PP. **OK CL-1(2) was closed**
CL-2	**<Basic Report for the project/PoA-DD>** Clarification is requested on following official references as documented evidence for the project. (1) Draft Electricity Sub-sector Medium Term Plan		(1) Please refer to document package for the document "Updated Least Cost Power Development Plan Study Periods;2011-2031	Documented evidence /7.9/ was received and confirmed as appropriate. **OK CL-2(1) was closed**

TABLE-3Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD, CPA-generic, CPA-specific)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	(2) Pre-FSR for decision making of implementation of PoA together with related events as a timeline.		(2) Please refer to dropbox folder, *"sent to JCI on 5th Nov 2012"* for: i. Project timeline ii. Carbon feasibility assessment conducted by Cool NRG International Pty Ltd. iii. CDM project potential & pipeline as at April 2011 KPLC and Standard Bank signed an agreement on 16th December 2010 that allows ONLY Standard Bank to develop all the CDM projects identified in KPLC. In 2011 Standard Bank appointed: i. International Carbon based in South Africa to train KPLC staff on conducting CDM origination and feasibility assessments for CDM projects among them energy efficient transformers. For a detailed project pipeline and action items, please refer to dropbox folder, *"sent to JCI on 13th Nov 2012"* ii. Cool NRG International Pty Ltd to conduct a feasibility assessment and carbon viability for energy efficient transformers and develop the project to registration. Cool NRG finalized the assignment by designing a high level carbon viability and financial model the results of which were presented in a report. Please refer to dropbox folder, *"sent to JCI on 13th Nov 2012"*	Documented evidence /7.1/ was received and confirmed as appropriate. **OK CL-2(2) was closed**
	(3) Ministry of Energy, 2012		(3) Please refer to document for the document "Ministry of Energy (2010, February) National Energy Policy.pdf" (the year has been corrected => 2010 instead of 2012). This document is called The document is called *Ministry of Energy 2012, Updated Least Cost Power Development Plan, Ministry of Energy, Republic of Kenya*. Please refer to dropbox folder *"sent to JCI on 5th Nov 2012"-sub-folder IEET CPA DD.*	Documented evidence /7.8/ was received and confirmed as appropriate. **OK CL-2(3) was closed**
	(4) Evolution of electrical consumption in Kenya		(4) Evolution of electrical consumption for different type of customers may be found in the "Updated Least Cost Power Development Plan" which is included in the evidence package. Please refer to dropbox folder *"sent to JCI on 5th Nov 2012"-sub-folder IEET CPA DD*	Documented evidence /7.22/ was received and confirmed as appropriate. **OK CL-2(4) was closed**
	(5) Source of Kenya's electricity Plan		(5) Kenya's electricity mix may be found at page 23 of the "Updated Least Cost Power Development Plan" which is included in the evidence package." Please refer to dropbox folder *"sent to JCI on 5th Nov2012"-sub-folder IEET CPA DD*	Documented evidence /7.22/ was received and confirmed as appropriate. **OK CL-2(5) was closed**

TABLE-3Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD, CPA-generic, CPA-specific)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	(6) Source of Kenya's electricity power plants and commissioning date,		(6) Kenya's electricity power plants and commissioning date may be found at page 23 of the "Updated Least Cost Power Development Plan" which is included in the evidence package. Please refer to dropbox folder *"sent to JCI on 5th Nov2012"-sub-folder IEET CPA DD*. For the purpose of GEF calculation, reference was made to: i. Daily log sheets for half-hourly consumption data as read via SCADA at the power stations-the dispatch tool, also referred to as IEET Grid Emission Factor converts this into hourly data as required by the applied tool. Please refer to droobox folder *"sent to JCI on 5th Nov2012"-sub-folder IEET CPA DD* ii. ERC-Energy Regulatory Commission: this document gives the guidance for calculating fuel consumption for thermal power stations. Please refer to droobox folder *"sent to JCI on 5th Nov2012"-sub-folder IEET CPA DD* iii. IEET Grid Emission Factor: this tool calculates the GEF based on a dispatch data analysis for the OM. Due to the huge amount of data sets approx. 500,000, the tool applies macros for converting the data imported from the daily log sheets in half-hour format into usable hourly form.	Documented evidence/7.22/ was received and confirmed as appropriate. **OK CL-2(6) was closed**
CL-3	**<u>< Official reports for additionality /Investment Analysis/PoA></u>** Clarification is requested on following official references as documented evidence for the project. (1) Sub-step 2b Apply benchmark analysis with all parameters together with evidences (2) It is requested to clarify the benchmarks of 12% which are certified by Authority/Company roles/standard or not. It is requested to clarify the assumed benchmark of standard in the market in accordance with of "Guidelines on the Assessment of Investment Analysis"	B.5.5.	1) Not applicable because of the proposed project is "the First-of- its-kind" and provide the documentary evidence that the First-of-its-kind nature of the project activity has been assessed confirmed by the DNA of Kenya. 2) Not applicable because of the proposed project is "the First-of-its-kind" and provide the documentary evidence that the First-of-its-kind nature of the project activity has been assessed confirmed by the DNA of Kenya.	Documented evidence /7.5/ was received and confirmed as appropriate. **OK CL-3(1) was closed**

TABLE-3Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD, CPA-generic, CPA-specific)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	(3) IRR calculation: The active spreadsheet of the IRR calculation shall be provided, including the sensitivity analysis with quantitative analysis together with evidences .		3) Not applicable because of the proposed project is "the First-of-its-kind" and provide the documentary evidence that the First-of-its-kind nature of the project activity has been assessed confirmed by the DNA of Kenya.	Documented evidence /7.10/ was received and confirmed as appropriate. **OK CL-3(2) was closed**
CL-4	**<Environmental impacts/PoA-DD>** Clarification is requested on following evidences relevant to the stakeholder's comments for the project. (1) Environmental Management and Co-ordination Act, 1999 (EMCA,1999)		**Environmental impacts/PoA DD:** Documentation for environmental analysis has been done in section E.2 of the PoA DD. **Stakeholder consultation: evidences** Please refer for the dropbox folder *"sent to JCI on 5th Nov2012*	Documented evidence/6.2.1/ was received. **OK CL-4 (1) was closed.**
CL-5	**<Procedure to avoid double-counting/PoA-DD>** Clarification is requested on the procedure to avoid double-counting for Proposed project;	B.2.	PoA DD, CPA DD-generic and CPA specific were revised to include the procedure to avoid double-counting in the eligibility criteria no. 2 that's states that: *"Each CPA will follow the procedures established by the CME to avoid double accounting and comply therewith.* *The CME will implement a system to avoid double counting of emission reductions. This system will avoid the situation where a new CPA that has been already registered either as a CDM project activity, or as a CPA of another PoA, is included under the PoA. In addition, to avoid double counting each CPA should demonstrate that they can be uniquely identified by location (Country/City/Line + Serial number of transformer)"*	Revised CPA-DD was received, and confirmed that the eligibility criteria was corrected appropriately. **OK CL-5was closed.**
CL for	**Table-2 CPA-DD-specific (CPA001)**			
CL-6	**<Project Timeline, Approvals/CPA001>** Clarification is requested on the following evidences for the project timeline for the all events.			

TABLE-3Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD, CPA-generic, CPA-specific)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	(1) The necessity of EIA Report and any related action and/or other approvals required, if EIA is not required.		EIA is not required. For a related action and/or other approvals, please refer to xxxxxx. Activities under the project activity are not in the second schedule of the Environmental Management and Co-ordination Act, 1999(EMCA, 1999) of activities that require an Environmental Impact Assessment (EIA). A compliance letter was issued by the National Environment Management Authority (NEMA) to confirm that an EIA was no required for the proposed Programme of Activities. Please refer to the dropbox folder *"sent to JCI on 5th Nov 2012.*	Application for a compliance Letter was issued on 06 June 2012 /5.3/. And related action will be xxxxxx **OK CL-6 (1) was closed**
	(2) The date of the stakeholders consultation meeting with documented evidence.		The stakeholder consultation was held on the 21 March 2012 as it is stated in the attendance sheets attached to the evidence package. Please refer to the dropbox folder *"sent to JCI on 5th Nov2012-subfolder Stakeholder consultation documents*	Documented evidence /12.3/ for the stakeholder consultation meeting on 21 March 2012 was received and confirmed. **OK CL-6 (2) was closed**
	(3) Starting Date of the CPA project (01/01/2013) in accordance with the Glossary of CDM Terms (Version 06.0). (implementation or construction or real action of a project activity)		Start date has been clarified as 01 Jan. 2013. The start date for the CPA is 01/07/2013. This is the earliest date at which installation of project transformers begins. Project timeline document has sent to the DoE. Please also refer to the dropbox folder *"sent to JCI on 13th Nov 2012.*	Documented evidence for the agreement for CPA on xxxx2012 was received and confirmed. **OK CL-6 (3) was closed**
CL-7	**<Project Timeline, Contracts/CPA001>** Clarification is requested on demonstration of the project timeline for the all events with the following evidences. (1) Agreement for CPA of the project implementation		Project timeline has been provided. Project timeline document has sent to the DoE. Please also refer to the dropbox folder *"sent to JCI on 13th Nov 2012.*	Agreement for CPA of the project/8.2/was received and confirmed. **OKCL-7 (1) was closed**
CL-7 (continued)	(2) Tender schedule of the proposed project.		Project timeline has been provided. Project timeline document has sent to the DoE. Please also refer to the dropbox folder *"sent to JCI on 13th Nov 2012.*	Tender schedule of the project/8.2/ was received and confirmed. **OK CL-7 (2) was closed**

TABLE-3Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD, CPA-generic, CPA-specific)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-8	**<Environmental impacts/CPA001>** Clarification is requested on following evidence for the environmental impacts for the project with the (1) any related action and/or other approvals required, if EIA is not required. (2) Permit letter for EIA report		Documentation for environmental analysis has been done in section E.2 of the PoA DD in line with the project standard. (1) Activities under the project activity are not in the second schedule of the Environmental Management and Co-ordination Act, 1999(EMCA, 1999) of activities that require an Environmental Impact Assessment (EIA). Please refer to the dropbox folder *"sent to JCI on 24th Aug 2012-subfolder IEET CPA DD* (2) The National Environment Management Authority (NEMA) issue a *compliance letter* confirming (1) above. Please refer to the dropbox folder *"sent to JCI on 24th Aug 2012-subfolder IEET CPA DD*	EIA report /5.3/ was received and confirmed as appropriate. **OK CL-8 (1) was closed.** **OK CL-8 (2) was closed.**
CL-9	**<Stakeholder's comments/CPA001>** Clarification is requested on following evidences for the stakeholder's comments for the project with the. (1) Evidence of invitation for Stakeholders Consultation Meeting		**Stakeholder consultation: evidences** Please refer for the dropbox folder *"sent to JCI on 5th Nov 2012* Invitation to stakeholder meeting was submitted.	Evidence for stakeholders consultation meeting /12.1/was received and confirmed as appropriate. **OK CL-9 (1) was closed.**.
	(2) Minute of Meeting for Stakeholders Consultation Meeting		Presentation used for the stakeholder consultation and "comments from stakeholder consultations.docx" are attached to the evidence package. **Stakeholder consultation: evidences** Please refer for the dropbox folder" *sent to JCI on 5th Nov 2012* for: i. Presentation used for the stakeholder consultation ii. Comments from stakeholder consultations - IEET PoA KICC 21 3 2012 QA iii. Photos iv. Attendance list v. Newspaper advertisement	Evidence for stakeholders consultation meeting /12.2/ was received and confirmed as appropriate. **OK CL-9 (2) was closed.**

TABLE-3Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD, CPA-generic, CPA-specific)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	(3) Samples of questionnaire and reply (Stakeholders comments) as the evidence		Stakeholders comments was submitted. Please refer for the dropbox folder *"sent to JCI on 5th Nov 2012- IEET PoA KICC 21 3 2012 QA* for samples of questionnaire and reply (Stakeholders comments)	Stakeholders comments/12.4/ was received and confirmed as appropriate. **OK CL-9 (3) was closed.**
CL-10	**<u>< Procedure to avoid double-counting/CPA001></u>** Clarification is requested on the procedure to avoid double-counting for the project	B.2.	CPA DD was revised to include in the eligibility criteria no.2 – conformance: *KPLC has a Management Information System. In the MIS System, the natural sequence number of each CPA will be distinct and uniquely identified to avoid double counting. In addition, to avoid double counting each transformer will be uniquely identified by location (Country/City/Line + Serial number).* Additional evidence and references have been provided to the DoE i.e. 1) Master ERPA (that gives the CME the exclusive rights to develop projects identified in KPLC), 2) CPA inclusion Management System developed by the CME to ascertain sufficiency of above management information system and 3) screenshots from the UNFCCC website to show the CPA has not been already registered either as a CDM project activity, or as a CPA of another PoA.	Revised PoA-DD was received, and confirmed that the eligibility criteria was corrected appropriately. **OK CL-10was closed.**
CL-11	**<Demonstration of Eligibility criteria/CPA001>** Clarification is requested on Table for eligibility criterion CPA-1 (1) The CDM-CPA involves installation of energy efficient transformers to new sites or to replace existing less efficient baseline transformers on the distribution electricity grid.		The revised CPA DD has criteria no.3 as: *This CPA involves installation of energy efficient transformers on new sites as well as replacing conventional, less efficient, baseline transformers in the Kenyan distribution grid.*	Revised PoA-DD was received and confirmed as appropriate. **OK CL-11(1)was closed.**
	(2) The start date of the CPA is not before the date of commencement of DOE validation of the PoA. Please provide documentary evidence of real action towards the CPA in order to justify the start date.		The start date of this CPA is 01/07/2013. This is the expected date of first installation of project transformers. Please refer for the dropbox folder *"sent to JCI on 5th Nov2012 – IEET timeline.*	Revised PoA-DD was received and confirmed as appropriate. **OK CL-11(2)was closed.**

TABLE-3Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD, CPA-generic, CPA-specific)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	(3) Each CPA should monitor and collect appropriate monitoring data as outlined in the PoA-DD and agree to provide the information to the CME. Please provide An agreement will be signed between the CPA and the CME, which will ensure that each CPA implementer will monitor and collect the required monitoring data and provide the information to the CME.		An agreement has been signed between the CME (Standard Bank Plc) and the CPA implementer (KPLC) describing how they will work together to monitor data as follows: 1. The CPA implementer will collect the data and submit it to the CME for review on a monthly basis. 2. The CME will then store the monitored data in the CME database (Document has been sent to the DoE. Please also refer to dropbox folder *"sent to JCI on 5th Nov2012)*	Letter of Intention /8.1/ was received and confirmed. **OK CL-11 (3) was closed.**
CL-12	**<Emission Reduction/CPA001>** Clarification is requested on following evidences for the Emission Reduction for the project.			

TABLE-3Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD, CPA-generic, CPA-specific)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	(1) The Excel data is available for calculation of BM and OM.		Please refer to document (The BM and OM have been calculated using a tool developed through a United Nation Development programme (UNDP) funded tool. The tool applies Dispatch data analysis OM method since hourly data is readily available at KPLC. In summary the following are the references for the determination of OM and BM: i. Daily log sheets for half-hourly consumption data as read via SCADA at the power stations-the dispatch tool, also referred to as IEET Grid Emission Factor converts this into hourly data as required by the applied tool. Please refer to dropbox folder *"sent to JCI on 5th Nov 2012"* ii. ERC-Energy Regulatory Commission: this document gives the guidance for calculating fuel consumption for thermal power stations. Please refer to dropbox folder *"sent to JCI on 5th Nov2012"-sub-folder IEET CPA DD* iii. IEET Grid Emission Factor: this tool calculates the GEF based on a dispatch data analysis for the OM. Due to the huge amount of data sets approx. 500,000, the tool applies macros for converting the data imported from the daily log sheets in half-hour format into usable hourly form. Please refer to dropbox folder *"sent to JCI on 24th Sept 2012"-sub-folder ER & IRR.*	Excel sheet for Emission Factor of the Grid in Kenya /9.2/ was received. Further clarification is requested for the source of the Statistics electricity generation and the type of powers. Data for Statistics electricity generation and the type of powers /9.1/ was received and confirmed. **OK CL-12(1) was closed.**
CL-13	**<Monitoring plan/CPA001>** Clarification is requested on information of the monitoring plan for the project. (1) Whether the calibration for measurement equipment is according to industry standards or not		Calibration for measurement of equipment will be done according to IEC Standards. This information has been added in the CPA-DD (page 36). Calibration for measurement of equipment will be done according to relevant international standards e.g. IEC Standards. This information has been added in the CPA-DD (page 47). Please refer to dropbox folder *"sent to JCI on 24th Sept 2012"-sub-folder ER & IRR.*	Revised CPA-DD was confirmed as appropriate. **OK CL-13 (1) was closed.**
CL-14	**<Ex-ante calculation of Emission Reductions /CPA001>** Clarification is requested on the Emission Reduction procedure.	**D 6.3**		

TABLE-3Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD, CPA-generic, CPA-specific)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	(1) The Note 2 of Applicability in the AM0067 stipulates as following; Transformers can be installed at any time during the crediting period in the project activity area, but they will only be eligible to obtain CERs from the beginning of the subsequent monitoring period. Clarification is requested whether the ex-ante ERs calculation of CPA-01 is in accordance with the AM0067. (2) Clarification is requested whether the sample calculation parameters and results of BE_y, PE_y and ER_s in the CPA-DD are consistent with those in the ERs calculation Spread Sheet.		(1) The PP has revised the ER calculation, which now complies with the Note 2 of applicability as stipulated in AM0067 (Version 2). In order to comply with AM0067_V2, Note 2, no CERs will be claimed in the first monitoring period from 1/07/15 to 30/06/16. Please refer to the ER calculation spread sheet for the details. (2) The PP has revised the sample calculation parameters and results of BE_y, PE_y and ER_y in the CPA-DD which are now consistent with the ER calculation spread sheet.	JCI confirmed that the ERs calculation is revised appropriately according to the Note 2 of Applicability in the AM0067. **OK CL-14 (1) was closed.** JCI confirmed that the BE_y, PE_y and ER_s in the CPA-DD are consistent with the Spread Sheet. **OK CL-14 (2) was closed.**
FAR	**Forward Action Requests**			
FAR-1	**<CDM monitoring and reporting manuals>** Forward action is requested to provide the CDM monitoring and reporting manuals for the solar project which includes the following items;. ➢ CDM management structure of operation/maintenance and monitoring, including internal audits and project performance reviews ➢ Education/training procedure for operation & maintenance including calibration of equipment for monitoring ➢ Procedures for records handling, dealing with possible monitoring data adjustments and uncertainties ➢ Specification of the monitoring system and its equipment (National or international standard for manufacturing, and procedure of calibration, accuracy class of meters) ➢ Operation and maintenance plan for monitoring equipment.			The CDM monitoring and management Manual is not received, however, it should be provided by the project operation start. **OK** **FAR-1 is not closed, but to be closed by the CPA001 operation start.**

APPENDIX B

Certificate of Appointment of Validation Team

Project Title	Installation of Energy Efficient Transformers (IEET)
Applied Methodology	AM0067
	Sectoral Scope 2

Date: May 8, 2012

Designated Operational Entity: Japan Consulting Institute (JCI)

Reflecting the competence criteria of JCI in accordance with "Criteria for operational entities of LIST of SECTORAL SCOPES", this is to certify the appointment of validation team of JCI specified below for the CDM project activity above, as per CDM Project Activity Registration Form, "**F-CDM-REG**" adopted at the 24th Meeting of CDM Executive Board, and Validation Procedure established by JCI CDM Center.

Signature

Akio Yoshida,
Executive Director, JCI CDM Center

Date: May 10, 2012

Standard Bank Plc.

Reflecting the curricula vitae provided, this is to agree the validation team of JCI specified below for the CDM project activity above, as per Validation Procedure established by JCI CDM Center.

It is also agreed that Mr. Mutsuo KATO of JCI participates in the validation activities of the said project for the quality issues under its quality management scheme.

Signature

(Name) G. SINCLAIR
(Title) HEAD of CARBON TRADING

Validation Team

Validation Team	Name	Assigned Role
Leader	Shigeo AOKI	Technical Area 2.1
Member	Shigeru MIYAZAWA	Technical Area 2.1
Technical Reviewer	Masatoshi SHIBATA	Technical Area 2.1