



# **POA VALIDATION REPORT**

## **Barefoot Power Lighting Programme**

24 July 2012

**Japan Consulting Institute**

**REPORT No. JCI-VAL 11/037**

**REVISION No.02**

## CDM Validation Report for Barefoot Power Lighting Programme

Date of issue 25 April 2012	Report Number JCI-CDM-VAL-11/037
Confirmed by Akio YOSHIDA Executive Director	Organizational Unit JCI CDM Center, Japan Consulting Institute (JCI)
Client Barefoot Power Pty Limited	Client ref., Mr. Harry Andrews
Project name Barefoot Power Lighting Programme	
Host Country Republic of Kenya	Methodology version AMS-III.AR. (Version 1)
Size Small Scale	ER estimate 9,749 t-CO <sub>2</sub> e/year (average CPA-SSK-KE-01)

**A summary of the validation process and its conclusions, validation opinion**

Japan Consulting Institute (JCI) has performed a validation work of the small-scale CDM Program of Activities (PoA) with the title "Barefoot Power Lighting Programme" in Kenya (hereafter called "the Project") under the act of the Coordinating / Managing Entity (CME), "Barefoot Power Pty Limited". This report summarizes the findings of the validation of the Project, the PoA small-scale CDM programme activities design document (CDM-SSC-PoA-DD) with generic information relevant to all CDM programme activities (CPAs) and one completed CDM-SSC-CPA-DD-KE-01 for Barefoot Power Lighting Programme SSK-KE-01 in Kenya (hereafter called "BFP SSK-KE-01") to be included under this PoA project.

The validation has been performed based on the UNFCCC criteria for PoA under 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 SSC-PoA-DD, the generic SSC-CPA-DD and the one real case SSC-CPA-DD-KE-01 (hereafter referred to "the DDs") and the subsequent follow-up interviews including the CME have provided JCI with evidences to determine the fulfilment of the stated criteria.
- The host country is Republic of Kenya (hereafter referred to "Kenya"), and Annex I country is not determined at present (uni-lateral condition).
- The project applied "AMS-III.AR. TYPE III - Other Project Activities – Substituting fossil fuel based lighting with LED lighting systems (version 01)", and the relevant Standards and Guidelines.
- The total emission reductions from the BFP-SSK-KE-01 are estimated to be on the average 9,749 t-CO<sub>2</sub>e per year over the 10 years' crediting period under the PoA (Barefoot Power Lighting Programme) with the 28 years' crediting period.
- It is JCI's opinion that the PoA as described in the CDM-SSC-PoA-DD version 07 and the DDs of the "Barefoot Power Lighting Programme" meets relevant UNFCCC requirements for the PoA and relevant host country criteria and correctly applies the methodology ASM-III.AR. version 01.

Date of revision 24 July 2012 For Revision 02	<input checked="" type="checkbox"/> No distribution without permission from the Client or responsible organisational unit  <input type="checkbox"/> Limited distribution  <input type="checkbox"/> Unrestricted distribution
Checked by Hideyuki Sato, Manager, Evaluation Group, JCI CDM Center	
Reviewed by Hideyuki Sato, Technical reviewer	
Work carried out by Takayuki Abe, Haruo Sawada	

## CDM Validation Report for Barefoot Power Lighting Programme

## Abbreviations

BFP	Barefoot Power Pty Limited ( the CME for the proposed PoA Project )
BFP SSK-KE-01	“Barefoot Power Lighting Programme SSK-KE-01”, the 1 <sup>st</sup> CPA in Kenya under the PoA Project, “Barefoot Power Lighting Programme”
CAR	Corrective Action Request
CL	Clarification Request
CDM	Clean Development Mechanism
PoA-DD	Small-Scale CDM PoA Design Document for “Barefoot Power Lighting Programme”
CPA-DD-KE-01	Small-Scale CDM PoA Design Document for Barefoot Power Lighting Programme SSK-KE-01, operated by Smart solar Kenya Limited in Kenya as the 1 <sup>st</sup> entity for CPAs
CEF	Carbon Emission Factor
CERs	Certified Emission Reductions
CME	Coordinating and Managing Entity
CO <sub>2</sub>	Carbon dioxide
CPA	CDM Programme Activity
DD	Design Document
DDs	PoA-DD, generic-CPA-DD, and the 1 <sup>st</sup> real CPA-DD-KE-01
DOE	Designated Operation Entity
DNA	Designated National Authority
ERPA	Emission Reduction Purchase Agreement
ERs	Emissions Reductions
EB	The CDM Executive Board under COP/MOP
EIA	Environment Impact Analysis
GHG	Greenhouse Gas
JCI	Japan Consulting Institute
Kenya	Republic of Kenya
KP	Kyoto Protocol
LoA	Letter of Approval
PP	Project Participants
SSK	Smart solar Kenya Limited (1 <sup>st</sup> CPA entity in Kenya )
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Clean Development Mechanism Validation and Verification Manual

## TABLE OF CONTENTS

<b>ABBREVIATIONS.....</b>	<b>2</b>
<b>I. VALIDATION SUMMARY AND OPINION.....</b>	<b>4</b>
<b>II. INTRODUCTION OF POA VALIDATION.....</b>	<b>4</b>
1. OBJECTIVE OF CDM VALIDATION.....	5
2. VALIDATION APPROACH .....	5
3. VALIDATION METHODS.....	6
3.1 Means of validation.....	6
3.2 Clarification requests, corrective action requests and forward action requests .....	6
4. STAKEHOLDER CONSULTATION PROCESS .....	8
<b>III. VALIDATION WORK.....</b>	<b>8</b>
1. VALIDATION TEAM .....	8
2. APPOINTMENT CERTIFICATE OF JCI VALIDATION TEAM MEMBER .....	9
3. QUALITY CONTROL WITHIN THE TEAM OF THE VALIDATION PROCESS.....	9
4. DESK REVIEW.....	9
5. FOLLOW-UP ACTIONS (E.G., ONSITE VISIT, INTERVIEWS WITH PROJECT STAKEHOLDERS).....	13
<b>IV. VALIDATION FINDINGS.....</b>	<b>14</b>
1. APPROVAL .....	15
2. PARTICIPATION .....	15
3. PROJECT DESIGN DOCUMENT.....	16
4. PROJECT DESCRIPTION.....	17
5. ELIGIBILITY CRITERIA FOR CPA INCLUSION .....	18
6. OPERATIONAL AND MANAGEMENT PLAN.....	26
7. BASELINE AND MONITORING METHODOLOGY .....	28
7.1 Applicability of selected methodology to the project activity .....	28
7.2. Project boundary .....	32
7.3 Application of baseline and monitoring methodology .....	33
8. ADDITIONALITY.....	37
9. MONITORING PLAN .....	40
10. SUSTAINABLE DEVELOPMENT .....	43
11. LOCAL STAKEHOLDER CONSULTATION.....	43
12. ENVIRONMENTAL IMPACTS.....	45
13. COMMENTS BY PARTIES, STAKEHOLDER THROUGH THE CONSULTATION PROCESS.....	45

## I. VALIDATION SUMMARY AND OPINION

Japan Consulting Institute (JCI) has performed a validation of the small-scale CDM Program Activities (PoA) with the title “Barefoot Power Lighting Programme “ (hereafter called “the Project”) to replace kerosene lamps with solar LED Lamps, in Kenya, under the activity of the Coordinating / Managing Entity (CME) ,”Barefoot Power Pty Limited.” (hereafter called “BFP”,or “the CME”) 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 reviews of the design documentation and the subsequent follow-up interviews have provided JCI with evidences to determine the fulfillment of the stated criteria.

The host country country is Republic of Kenya (hereafter referred to “Kenya”) , the project participant of Annex I country of the Project is not determined at present.(uni-lateral condition). The host country fulfilled the participation criteria.

The Project applied “AMS-III.AR. Substituting fossil fuel based lighting with LED lighting systems, version 01.”

The total emission reductions from the BFP-SSK-KE-01 were estimated to be the average 9,749 t-CO<sub>2</sub>e per year over the 10 years’ crediting period for the BFP-SSK-KE-01 in Kenya, one of the real component project activities (CPA) under the proposed PoA with the 28 years’ crediting period. The estimated emission reductions has been checked based on the validation work and JCI considered all relevant assumptions for the above estimated emission reduction was accurate and appropriate.

In summary, it is JCI’s validation conclusion that the Project as described in the latest version of the DDs which include CDM-SSC-PoA-DD, the generic CPA-DD and specific real case of CDM-SSC-CPA-DD-KE-01 (for one CPA, BFP-SSK-KE-01) meets all relevant UNFCCC requirements for PoA and all relevant host country criteria and currently applied the baseline and monitoring methodology AMS-III.AR. “Substituting fossil fuel based lighting with LED lighting systems” (version 01).

JCI thus provides a positive validation opinion and the requests for the registration of the Project as a PoA.

## II. INTRODUCTION OF POA VALIDATION

Barefoot Power Pty Limited (hereafter referred to “BFP”) has commissioned JCI to perform a

**CDM Validation Report for Barefoot Power Lighting Programme**

validation of the Project. This report summarizes the findings of the validation of the Project performed on the basis of CDM VVM version 01.2, and related UNFCCC criteria for the PoA, 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 purpose of validation is to ensure a thorough, independent assessment of proposed project activities submitted for registration as a proposed PoA project activity against the applicable PoA requirements.

JCI reports the results of its assessment in a validation report. JCI submits this validation report, along with the supporting documents to the CDM Executive Board as part of the request for registration of PoA.

The validation report includes a positive validation opinion as the Project activity complies with the applicable PoA requirements.

## **2. Validation approach**

The CDM is a rules-based mechanism. Therefore, it is the JCI's responsibility to ensure that, in accordance with the Validation and Verification Manual version 01.2 and PoA requirements, these rules are complied with for any project activities requesting registration as a proposed PoA project activity.

During validation, the JCI assesses whether the project design of the proposed PoA project activity meets the all relevant requirements. For this, JCI, using objective evidence, assesses the completeness and accuracy of the claims and conservativeness of the assumptions made in the design documents (DDs) of the PoA. The evidence used in this assessment is not limited to that provided by the project participant (the CME or BFP).

In assessing evidence, JCI does not omit evidence that is likely to alter the validation opinion. In the assessment of evidences, JCI uses the acceptable approaches as specified in section II to IV, below, and JCI ensures that the project activity complies with the relevant requirements set out in the CDM modalities and procedures, the applicability conditions of the selected methodology and guidance issued by the CDM Executive Board before submitting a request for registration.

In case the validation report includes a negative validation opinion, the validation report is sent to the CDM Executive Board.

### 3. VALIDATION METHODS

#### 3.1 Means of validation

JCI applies standard auditing techniques to assess the correctness of the information provided by the project participants, including, where appropriate, but not limited to:

- (a) 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 DDs and information from sources other than that used, if available, 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-check of information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted from the validation;
- (c) Reference to available information relating to projects or technologies similar to the proposed CDM project activity under validation; and
- (d) Review, based on the approved methodology being applied, of the appropriateness of formulae and correctness of calculations.

#### 3.2 Clarification requests, corrective action 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 ensures that these issues are correctly identified, discussed and concluded in the validation report.

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

## CDM Validation Report for Barefoot Power Lighting Programme

JCI raises 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 resolves or “close out” CARs and CLs only if the project participants modify the project design, rectify the DDs or provide adequate additional explanations or evidence that satisfies the DOE’s concerns. If this is not done, JCI does not recommend the project activity for registration to the CDM Executive Board.

JCI reports on all CARs, CLs and FARs in its validation report. This reporting is 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 DDs of the PoA 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**

✧ **Requirement (Checklist Question) :**

*The various requirements in Table 1 are checklist questions the project should meet. The checklist is organised in different sections, following the logic of the latest VVM, the PDD Guidelines and the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.*

✧ **Reference :**

*Gives reference to documents where the checklist question or item is found. Paragraph No. of VVM 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 2: Resolution of Corrective Action and Clarification Requests**

✧ **Clarifications and corrective action requests :**

*If the conclusions from the draft Validation are either a CAR, a CL or a FAR, these should be listed in this section.*



## CDM Validation Report for Barefoot Power Lighting Programme

**Table 2: Resolution of Corrective Action and Clarification Requests**

- ✧ **Ref. to checklist question in Table1 :**  
*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.*

The completed validation protocol for the Project will be enclosed in Appendix A to this report when the report is completed.

#### 4. STAKEHOLDER CONSULTATION PROCESS

JCI makes all DDs of the PoA under consideration publicly available in accordance with the latest version of the “Procedures for Processing and Reporting on Validation of CDM Project Activities”<sup>\*1</sup>.

<sup>\*1</sup> <[http://cdm.unfccc.int/Reference/Procedures/valid\\_proc02.pdf](http://cdm.unfccc.int/Reference/Procedures/valid_proc02.pdf)>.

During the validation of the project activity, JCI takes into account the comments received and the validation report shall include details of actions taken to take due account of the comments during the validation process.

If comments are not sufficiently substantiated or indicate that the project activity does not comply with the CDM requirements, then JCI requests further clarification from the entity providing the comment. However, JCI is not required to enter into a dialogue with Parties, stakeholders or NGOs that comment on the CDM requirements. If no additional information or substantiation is provided in response to a request for clarification, JCI proceeds to assess the comments as originally provided.

### 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 III.1.

**Table 1-a Details of Validation Team members**

## CDM Validation Report for Barefoot Power Lighting Programme

Role/Qualification	Name	Qualified Technical Areas related to the Project	On-site Visit
All relevant issues / Team Leader	Takayuki Abe	(TA1.2) Energy generation from renewable energy sources	-
CDM auditor / Team Member	Haruo Sawada	(TA1.2) Energy generation from renewable energy sources	✓ -

Details of the technical reviewer are shown in below Table III.1-b.

**Table 1-b Technical Reviewer**

Name	Qualified Technical Areas related to the Project
Hedeyuki Sato	(TA1.2) Energy generation from renewable energy sources

## 2. Appointment certificate of JCI validation team member

The certificate of appointment of validation team member will be 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 to ensure the compliance with the applicable requirement of VVM.

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 interim technical review by 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 internal audit team and the final technical review by 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

### 4.1 Document review

## CDM Validation Report for Barefoot Power Lighting Programme

The CDM-SSC-PoA-DD, the generic CDM-SSC-CPA-DD and the specific CDM-SSC-CPA-KE-01 (hereafter referred to “the DDs”) were submitted to JCI firstly in August 2011 and their subsequent revisions have been reviewed. The additional evidences and information related to the PoA have been reviewed to verify the correctness, credibility and interpretation of the presented information. Furthermore, a cross-check between provided information and information from other sources has been done as an initial step of the validation process. A complete document list of all documents and evidence material is shown in below Table 2.

#### 4.2 Document list

All the relevant documentation to be reviewed through the whole validation process is listed in tabular form in the following table (**Table 2**) :

**Table 2. : Document list**

No.	Title
<b>1.</b>	<b>&lt;DDs for POA and CPA, ERs Spread sheet &gt;</b>
1.1	CDM-SSC-PoA-DD version 01, 17/08/2011 for GSC
1.2	CDM-SSC-PoA-DD version 07, 24/07/2012
1.3	CDM-SSC-CPA-DD version 01, 17/08/2011 (generic CPA) for GSC
1.4	CDM-SSC-CPA-DD version 04, 24/07/2012 (generic CPA)
1.5	CDM-SSC-CPA-DD-KE-01 version 01, 17/08/2011 (for CPA- BFP SSK-KE-01) for GSC
1.6	CDM-SSC-CPA-DD-KE-01 version 06, 24/07/2012 (for CPA- BFP SSK-KE-01)
1.8	ERs Spread sheet for CPA- BFP SSK-KE-01,Version04 10/07/2012
<b>2.</b>	<b>&lt;Letters of Approval&gt;</b>
2.1	LoA (Letter of Approval) for the Project by DNA of Kenya, 23/04/2012
2.3	Letter of Affirmation about “No-diversion of ODA Fund to the financial obligations of CDM Project” by European Commission EuropeAid dated 06/03/2012
<b>2.</b>	<b>&lt;Outline of the related entities &gt;</b>
2.5	Certificate for Registration to Barefoot Power Pty Limited by Australian Securities and Investment Commission dated 20/01/2005
2.6	Single Business Permit to SMART SOLAR (K) LTD. issued by Nairobi City Council dated 20/01/2011.
2.6.2	Certificate of Incorporation to SMART SOLAR (KENYA) LIMITED as a LIMITED dated 15/09/2009
<b>3.</b>	<b>&lt;Referenced Documents (Methodology, Guidance, Criteria, etc. of UNFCCC)&gt;</b>
3.1	CDM Validation and Verification Manual (VVM) (Version 01.2), EB55 Annex 01
3.2	Approved Methodology “Substituting fossil fuel based lighting with LED lighting systems” (version 01)
3.3	Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities” (Version 01.0), EB 65 Annex 3
3.4	“Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities” (Version 02.0), EB 65, Annex2

## CDM Validation Report for Barefoot Power Lighting Programme

No.	Title
3.5	Guidelines on the Demonstration of Additionality of Small-Scale Project Activities (Version 09.0) ,EB68 Annex 27
3.6	General Guidelines for SSC CDM methodologies (version 17)
3.7	Guidelines for Objective Demonstration and Assessment of Barriers (Version 01)
3.8	Guidelines for Demonstrating Additinoality of Microscale Project Activities (Version 04.0), EB68 Annex 26
3.9	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), EB55 Annex 38
3.10	Glossary of CDM terms (Version 06.0)
3.11	Annex : Modalities and procedures for a clean development mechanism ” as defined in Article 12 of the Kyoto Protocol
3.12	Guidelines on Assessment of Debundling for SSC Project Activities (version 03), EB54 Annex 13
3.14	Guidelines on Completeness Check of Request for Registration” (EB48 Annex 60)
3.15	The response by SSC WG36 to a request for clarification (SSC 609) dated 23/03/2012
<b>4.</b>	<b>&lt; Local Codes, Regulations, General references related to the Project&gt;</b>
4.1	Kenya Environmental Management Coordination Act. 1999 No.8.
4.2	Kenya Environmental Management and Co-ordination (Waste Management) Regulations, 2006.
4.5	Quality Inspection of Imports Order (1998) by the Kenya Bureau of Standards. <a href="http://www.kenyalaw.org/kenyalaw/klr_app/frames.php">http://www.kenyalaw.org/kenyalaw/klr_app/frames.php</a>
<b>5.</b>	<b>&lt; Published references &gt;</b>
5.1	Market quantitative assessment on various illumination devices including LED light and kerosene lamps – Kenya, by <i>Lighting Africa</i> (2008)
5.2	Kenya Integrated Household Budget Survey (KIHBS) 2005/2006 Basic Report by Minister for Planning and National Development
5.3	Leading Economic Indicators by Kenya National Bureau of Statistics (August 2011)
5.4	Qualitative off-grid lighting market assessment - Kenya , by <i>Lighting Africa</i> (2008 Oct.)
5.5	Productive uses of energy for rural development , by Cabraal et al.,by <i>Ann.Rev.Envirn.Resour.</i> 30(p117) (2005)
5.6	Solar Lighting for the Base of Pyramid - Overview of an Emerging Market, by <i>Lighting Africa</i> (2010)
5.7	Solar Lantern Test (world-wide comparison) by <i>German Gesellschaft for Technische Zusammenarbeit (GTZ) GmbH</i> , (2009 March)
5.8	Lumina Project - Technical Report 6 (June 21,2010)
5.9	Research on Solar home system market and LED product quality in Kenya, <i>EnergyPolicy_30</i> (p477) (2002)
5.10	Off- grid Lighting in Kenya
5.10.2	Flashlight_Report_ by <i>Lighting Africa_05/02/2010</i>
5.11	Lumina Project –research note #4-torches (Sep.14,2009)

## CDM Validation Report for Barefoot Power Lighting Programme

No.	Title
5.12	<i>Lighting Africa</i> Annual Report FY2009/2010
5.13	Assessment of the solar micro franchises to solar market report by <i>GTZ</i> (2009)
5.14	A five-year review of burn injuries in Nigeria by Dongo et al. by <i>BMC Health Services Research</i> , 7 (p171)(2007)
5.15	Research on particulate matter from kerosene lamps, by <i>Indoor Air</i> 20(p399) (2010)
5.16	2009 Kenya Population and Housing Census by Kenya National Bureau of Statistics (2010 )
<b>6.</b>	<b>&lt; Contracts, Agreements for Project&gt;</b>
6.1	Minutes of Understanding on the batteries disposal between Barefoot Power Ltd. and the licensed disposer (EAST AFRICAN COMPUTER RECYCLING), signed 18/11/2011
6.2	An example of import certificates of the project lamps issued by Kenya Bureau of Standards dated 21/10/2011
6.3	Contractual Agreement between CME and SSK on CDM Project Agreement on 10/07/2012
<b>7.</b>	<b>&lt; Documentary evidences, Records for the Project &gt;</b>
7.1	An example copy of the stakeholders' opinion held at YMCA Central Hostel in Nairobi dated 25/03/2011
7.2	The local stakeholders' consultation summary report held at YMCA Central Hostel in Nairobi dated 25/03/2011
7.3	The loan agreement between the bank and Barefoot Power Ltd in 2011 (as an extract from the signed convertible debt term sheet )
7.4	Annual Capital Amount of BFP
7.6	Market price comparison of LED Lamps in Kenya, by BFP (2011)
7.8	The test_procedure_by Lighting Africa Quality Test Method _v.2.01_2011-02-22
7.9	LED_Lighting_Test Procedures_Draft_FISE_Aug09
7.10	Preliminary end-users survey of the project lamps in Uganda dated 02/04/2012
7.11	BFP products Quality test result including LED degradation over 10,000hrs (2011)
7.13	BFP Gen2.5 Prod Mix and Pricing v5.3 Final June 2011
7.14	BFP Record Keeping and Project Monitoring Manual compiled dated 06/12/2011
7.14.2	BFP Record Keeping and Project Monitoring Manual Version 3 compiled dated 09/07/2012
7.15	JCI on-site assessment report dated 26/11/2011
7.16	The first sales invoice of the project lamps in Kenya dated 09/12/2011
7.17	Confirmation Letter by SSK on no public funding from Annex I countries dated 09/01/2011
7.20	The manufacturer certification for the one project lamp type "Firefly Mobile" issued by Operations Director for the products
7.21	The manufacturer certification for the one project lamp type "PowerPack Junior Matrix" issued by Operations Director for the products
7.22	The manufacturer certification for the one project lamp type "PowerPack 5W" issued by Operations Director for the products
7.23	Lighting Africa Product Testing Verification for Barefoot "Firefly Mobile" dated July 2012
7.24	Lighting Africa Product Testing Verification for Barefoot "PowerPack Junior Matrix" dated July 2012
7.25	Lighting Africa Product Testing Verification for Barefoot "PowerPack 5W" dated July 2012

## CDM Validation Report for Barefoot Power Lighting Programme

## 5. Follow-up actions (e.g., Onsite visit, Interviews with Project Stakeholders)

The on-site assessment and interviews with project stakeholders were held from 22 to 26 November 2011 at Nairobi Kenya and Kampala Uganda.

The names of interviewees and topics are listed in following Table 3.

**Table 3. List of interviewees**

Date / Place	Name	Organization	Topic
22/11/2011  Nairobi, in Kenya	<ul style="list-style-type: none"> <li>Mr. Andrew Barson (Project Manager)</li> <li>Mr. Adriaan Tas (Director) , Mr. Matthew Woods (Director), Ms. Maryanne Maina (Project Officer)</li> </ul>	<ul style="list-style-type: none"> <li>Barefoot Power Pty Limited (BFP) (the CME)</li> <li>Carbon Africa Limited (CAL) (The carbon consultant and PoA-DDs Author)</li> </ul>	<p><b><u>Interview with CME, Carbon consultant</u></b></p> <ul style="list-style-type: none"> <li>Company profile and Scheme of Project</li> <li>Management of CME and Eligibility Criteria</li> <li>Additionality of PoA/CPAs</li> <li>Technical feature /Monitoring plan</li> <li>Review of documentary evidences</li> <li>Initial Findings Review</li> </ul>
23/11/2011  Nairobi, in Kenya	<ul style="list-style-type: none"> <li>Mr. Andrew Barson (Project Manager)</li> <li>Mr. Boldewijn Sloet (Managing Director)</li> <li>Mr. Adriaan Tas (Director) , Mr. Matthew Woods (Director), Ms. Maryanne Maina (Project Officer)</li> </ul>	<ul style="list-style-type: none"> <li>Barefoot Power Pty Limited (BFP) (the CME)</li> <li>SSK (CPA Kenya)</li> <li>Carbon Africa Limited (CAL) (The carbon consultant and PoA-DDs Author)</li> </ul>	<p><b><u>Interview with CME, CPA Kenya, Carbon consultant</u></b></p> <ul style="list-style-type: none"> <li>Business scheme of CPA</li> <li>Technical feature /Monitoring plan</li> <li>Environmental aspect</li> <li>Review of stakeholders comments</li> </ul>
24/11/2011  Kampala, in Uganda	<ul style="list-style-type: none"> <li>Mr. Andrew Barson (Project Manager)</li> <li>Mr. Dirk Kam (Managing Director)</li> <li>Mr. Adriaan Tas (Director) , Mr. Carlos Guerrero (Project Officer)</li> </ul>	<ul style="list-style-type: none"> <li>Barefoot Power Pty Limited (BFP) (the CME)</li> <li>BFPU (CPA Uganda)</li> <li>Carbon Africa Limited (CAL) (The carbon consultant and PoA-DDs Author)</li> </ul>	<p><b><u>Interview with CME, CPA Uganda, Carbon consultant</u></b></p> <ul style="list-style-type: none"> <li>Business scheme of CPA</li> <li>Technical feature /Monitoring plan</li> <li>Environmental aspect</li> <li>Review of stakeholders comments</li> </ul>
23/11/2011  Naai Mahiu Town, in Kenya	<ul style="list-style-type: none"> <li>Four end user families and one LED shop in local town</li> </ul>	<ul style="list-style-type: none"> <li>Farmers / Chicken farm / Political refugee /Shop keeper</li> </ul>	<p><b><u>Interview with Local stakeholders, Kenya</u></b></p> <ul style="list-style-type: none"> <li>Meeting with local stakeholders and participants in the marketing</li> </ul>



## CDM Validation Report for Barefoot Power Lighting Programme

Date / Place	Name	Organization	Topic
25/11/2011  Mukono district, in Uganda	· Two end user families in local villages and dealers and sales managers at BFPU office	· Farmers / Sales persons	<b><u>Interview with Local stakeholders, Uganda</u></b> · Meeting with local stakeholders and participants in the marketing
26/11/2011  Kampala, in Uganda	· Mr. Andrew Barson (Project Manager)  · Mr. Adriaan Tas (Director) , Mr.Carlos Guerrero (Project Officer)	· Barefoot Power Pty Limited (BFP) (the CME)  · Carbon Africa Limited (CAL) (The carbon consultant and PoA-DDs Author)	<b><u>Meeting with CME, Carbon Consultant</u></b>  · Closing meeting

#### IV. VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The basic information of the Project, which included the final version of the DDs (the CDM-SSC-PoA-DD, the generic CDM-SSC-CPA-DD and the specific CDM-SSC-CPA-SSK-(KE)) has been validated. The validation criteria (requirements), the means of validation and the results from the validation process are identified and documented in more detail in the validation protocol in Appendix A.

JCI issued six (6) CARs, fourteen (14) CLs and two (2) FARs as shown in the Validation Protocol, Appendix A of this report.

Process of resolution of the CARs and CLs are described in the Table 2 of the Appendix A, Validation Protocol.

Main changes between the first version of the DDs published for the 30 days stakeholders commenting period and the final version of the DDs submitted for registration, are listed below Table 4.:

**Table 4. Major Changes in the Content of the DDs**

Subject and section in the DDs	Original content in the DDs /1.1//1.3//1.5/	Revised content in the DDs/1.2//1.4//1.6/	Issued CAR or CL Relevant methodology, tool, guidance, or guidelines applied
LoAs <u>PoA-DD A.3.</u>	Both LoAs of Host countries (Kenya and Uganda) and Annex I country were not issued yet	The Host country was changed to Kenya only (LoA was issued)  Annex I country was not determined (unilateral condition )	CAR-1, CAR-2, FAR-1 Para 45, 47,52,126 of VVM
Affirmation letter of No-diversion of ODA fund	Affirmation letter was not issued	Affirmation Letter was issued	CAR-4 PDD Guidelines ver.07. Para.14.of the Standard /3.3/

## CDM Validation Report for Barefoot Power Lighting Programme

Physical location <u>PoA-DD A.4.1.</u>	The PoA planned to implement both in Kenya and Uganda	The project participant has decided to implement only in Kenya first, then PoA-DD was appropriately revised.	CL-1 Para.78 of VVM
ERs calculation <u>CPA-DD B.5.</u>	Clarification on applied parameter values (Annual average 40,325 t/y)	Project lamp types and their technical parameters ( including useful life) have been adequately revised, then Annual average 9,749 t/y)	CAR-5, CL-4 Methodology /3.2/, and Para.90 91 of VVM
Applicability of Standards and Guidelines <u>PoA-DD A.4.2.2 / CPA-DD B.2. &amp; PoA-DD A.4.4.2. , E.7.2. / CPA-DD B.6.1.</u>	After the DDs for GSC, the two new Standards were introduced	Eligibility Criteria for inclusion of CPA, and Monitoring plan were appropriately revised by applying the two new Standards. Guidelines were updated.	CAR-6, CL-10 Para 165 of VVM <i>Standard for demonstration of additionality, development of eligibility criteria (EB65 Ann.3), and Standard for sampling and surveys (EB65 Ann.2)</i>
Sampling size for ex-post monitoring survey <u>PoA-DD A.4.4.2. , E.7.2. / CPA-DD B.6.1.</u>	Sampling size was determined as 125	Sampling size equation was adequately applied according to <i>Standard for sampling and surveys</i> , thus Sampling size was revised to 420	CAR-6, CL-10 Para 165 of VVM Methodology /3.2/
Project start date <u>CPA-DD A.4.2.</u>	The date at CPA-DD A.4.2. was before the date for GSC	The date was appropriately revised to 09/12/2011 confirmed with its invoice	CL-3 Para 99 of VVM

## 1. Approval

JCI issued CAR-1, and CAR-2 for request on the LoA of the host country.

JCI have received a copy of the Letter of Approval (LoA) from DNA of host country, Kenya, for the entity responsible for the CDM PoA project, Barefoot Power Pty Limited, with confirmation of approval on the proposed CDM project, Barefoot Power Lighting Programme.

JCI also has confirmed the following:

JCI has received the Letter of Approvals from the project participant, Barefoot Power Pty Limited, with clearly referencing the letter itself and any supporting documentation;

- DNA of Kenya issued LoA dated 23 April 2012.

## 2. Participation

JCI has acknowledged that the LoA of Republic of Kenya confirms the followings;



**CDM Validation Report for Barefoot Power Lighting Programme**

Republic of Kenya has ratified the Kyoto Protocol on 25 February 2005

- (a) The Government of Kenya is a Party to the Kyoto Protocol and Participation in CDM project activities is voluntary
- (b) The proposed PoA project activity contributes to the sustainable development of Republic of Kenya, host country
- (c) It refers to the precise proposed PoA project activity title in the SSC-PoA-DD being submitted for registration, and Barefoot Power Pty Limited is the entity responsible for implementing the PoA.

During the validation period, the project participant, Barefoot Power Pty Limited, has decided the proposed PoA would be implemented only in Kenya first, although the Project planned to implement both in Kenya and Uganda as host countries at the time of submission of the DDs to UNFCCC.

JCI has raised CL-1 to revise the PoA-DD and its revision /1.2/ was confirmed to be appropriately corrected.

As the project participant, Barefoot Power Pty Limited did not intend to make a contract with a CER buyer before the request for registration of the proposed project, JCI has raised FAR-1 that a LoA by Annex-I country is to be submitted to EB before request for issuance of CER, to comply with the guidelines by EB 18 report Para.57.

JCI confirmed that “Barefoot Power Pty Limited ” is the sole project participant of Kenya, as being listed in tabular form in section A.3 of the PoA-DD/1.2/. It is also confirmed that no entities other than those approved as the project participant are included in these sections of the PoA-DD/1.2/.

As described above, the project participant, was authorized with the LoA issued by the relevant DNA as a responsible entity for the PoA project activity.

### **3. Project Design Document**

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

- (1) Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities (Version 01.0, Annex 3, EB 65)
- (2) Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities (Version 02.0, EB 65, Annex2)

**CDM Validation Report for Barefoot Power Lighting Programme**

- (3) AMS-III.AR. “Substituting Fossil Fuel Based Lighting with LED Lighting Systems” version 01.
- (4) 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, EB55 Annex 38)
- (5) General Guidelines to SSC CDM methodologies (version 17)
- (6) Guidelines on the Demonstration of Additionality of Small-Scale Project Activities (Version 09.0), EB68 Annex 27
- (7) Guidelines for Demonstrating Additionality of Microscale Project Activities (Version 04.0), EB68 Annex 26
- (8) CDM Validation and Verification Manual (VVM) (Version 01.2.)
- (9) Glossary of CDM terms ( Version 06.0 )
- (10) Guidelines on Assessment of Debundling for SSC Project Activities version 03.
- (11) Guidelines for Objective Demonstration and Assessment of Barriers (version 01)
- (12) And the related information

The project design was described using the appropriate template (CDM-SSC-PoA-DD Version 01 and CDM-SSC-CPA-DD Version 01) as shown in the DDs, that were confirmed through comparison with the template listed on the UNFCCC website.

As described above, JCI judged that the DDs (CDM-SSC-PoA-DD, generic CDM-SSC-CPA-DD and specific CDM-SSC-CPA-DD-KE-01) 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.

#### **4. Project Description**

JCI conducted on-site assessment from 22 through 26 November 2011 to confirm the context of the DDs with the following measures:

- 1) Observation of the project site
- 2) Cross-check of the project design work with relevant documents provided by the project participants
- 3) Interviews with the project participant (Coordinating/Managing Entity; Barefoot Power Pty Limited), the carbon consultant and DDs Author (Carbon Africa Limited (hereafter referred to “CAL”), and relevant organizations/entities, and local stakeholders shown in Table 3 of section 5 of the previous Chapter III.

As the result of the above observations and findings and through the clarifications of descriptions of the DDs after the on-site assessment, JCI judged that the descriptions of the DDs were correct

## CDM Validation Report for Barefoot Power Lighting Programme

and its context was sufficient, and well outlined the nature and technical aspects of the project activity.

The technical aspects of the project activity described both at section A.4.2.1. of CDM-SSC-PoA-DD/1.2/ and section A.2. of CDM-SSC-CPA-DD-KE-01/1.6/ were cross-checked with the published information /5.9//5.6//5.4/.

The contribution to sustainable development in the Host country by the proposed PoA project was covered at section A.2. of CDM-SSC-CPA-DD-KE-01/1.6/, which JCI cross-checked with the published information /5.1//5.6//5.5//5.14//5.15/, and confirmed its income generation, impact on household expenditure, education, health and safety impact in addition to GHG reduction.

The major features of the project activity described in the document, CDM-SSC-PoA-DD , generic SSC-CPA-DD and CDM-SSC-CPA-DD-KE-01 for the first specific CPA (the project title : Barefoot Power Lighting Programme SSK-KE-01) are summarized below:

- Project type : Sale of the LED lamps with photovoltaic system to replace kerosene lamps in households and small and medium enterprises across Kenya.
- Coordinating Managing Entity (CME) : Barefoot Power Pty Limited
- CPA Entities : Smart Solar Kenya Limited (SSK) for the 1<sup>st</sup> CPA as BFP SSK-KE-01.
- Project Start date : 09/December/2012 for the 1<sup>st</sup> CPA as BFP SSK-KE-01
- The project lamps : 3 Types and 7 Items of project lamps
- Kerosene fuel use rate : 0.025 liter/hour/lamp (Default value)
- Baseline Emission-factor : to be verified for each CPA
- Rated lamp life of project lamps: at least 5,000 hours
- Estimated annual averaged ERs: 9,749 t-CO<sub>2</sub>e/year for the 1<sup>st</sup> CPA, BFP SSK-KE-01
- Crediting period : Fixed crediting period 10 years for the 1<sup>st</sup> CPA, BFP SSK-KE-01  
Length of the PoA project is 28 years.

## 5. Eligibility Criteria for CPA Inclusion

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 A.4.2.2. of the PoA-DD /1.2/. , as shown below Table 5.

JCI assessed the demonstration by the CME about the criteria, and noted DOE's justification at the foot line of each corresponding item of Table 5., through *Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities (Version 01.0, Annex 3, EB 65)* (hereafter called the Standard), and

## CDM Validation Report for Barefoot Power Lighting Programme

AMS-III.AR. “Substituting Fossil Fuel Based Lighting with LED Lighting Systems”( version 01), (hereafter called the Methodology), *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, EB55 Annex 38).*

Table 5. Eligibility Criteria Check

#	Eligibility criteria noted by CME at PoA-DD A.4.2.2.	Means of verification by CME
1	<p>The geographical boundary of the CPA including any time-induced boundary shall be consistent with the geographical boundary set in the PoA</p> <p><b>Justification by DOE</b> The CPA-DD under section A.4.1.2 shall provide a map of geographical boundary which is in accordance with the geographical boundary set in the PoA. The CPA-DD-KE-01 under section A.4.1.2 with the full list of district names and codes in its Annex.5 was confirmed to be consistent with the set of the latest version of PoA-DD. Therefore, this criteria are deemed sufficiently established, and they comply with the Procedures, and the Standard Para.14.(a).</p>	<p>Distribution plan of the SSC-CPA</p> <p>Any amendments on the project boundary will be done in accordance with the <i>Clarifications regarding the “Procedures for the registration of a Programme of Activities as a single CDM project activity and issuance of Certified Emission Reductions for a Programme of Activities”</i> (EB 60, Annex 26).</p>
2.	The CPA has measures in place to avoid double counting	
2a.	<p>Project lamps distributed by the CPA will be marked for clear and unique identification with the project activity</p> <p><b>Justification by DOE</b> The measures to avoid double counting was demonstrated in details at Operation and Management Plan in the PoA under section A.4.4.1 , which shall be applied to the CPA under the contractual agreements between CME and each CPA as noted at Criterion 14 of this Table. As the one example with CPA-DD-KE-01, JCI identified the fourteen (14) digital code printed on the products/7.15/, also verified with the contract/6.3/ as well as with the manuals/7.14.2/. Therefore the criteria are deemed sufficient, and they comply with the Standard Para.14.(b).</p>	<p>Mark on the project lamps distributed by the CPA. The mark should at least uniquely identify the project lamp with the PoA and with the CPA.</p>
2b.	<p>The CPA has not yet been included in another Programme of Activities or has not yet been registered as a single CDM project activity</p> <p><b>Justification by DOE</b> JCI verified with the CPA-DD-KE-01 with its contractual agreement with CME/6.3/ in addition to its description under sections A.4.7.and B.2. Therefore the criterion is deemed sufficient.</p>	<p>Signed confirmation from the entity implementing the CPA, confirming that the project has not yet been included in another Programme of Activities or has not yet been registered as a single CDM project activity</p>
3	<p>The project lamps and charging systems will at least meet the minimum technical and operational requirements as specified in version 01 of AMS III.AR <i>Substituting fossil fuel based lighting with LED lighting systems</i>. The CPA shall also comprise of activities that replace portable fossil fuel based lamps with LED-based lighting systems in residential and non-residential applications</p>	
3a	<p>The project lamps shall have a useful lifetime of at least 5,000 hours (certified by the manufacturer);</p>	<p>Certificate from the manufacturer</p>

## CDM Validation Report for Barefoot Power Lighting Programme

#	Eligibility criteria noted by CME at PoA-DD A.4.2.2.	Means of verification by CME
	<b>Justification by DOE</b> The Criterion 14 ensures through the contractual agreement that the CPAs have to deliver the BFP products which fulfill the performance specification with manufacturer certification. JCI verified the 1 <sup>st</sup> CPA with its CPA-DD-KE-01 that it included the specifications of rated average life at sections A.2.and B.2.. As for “Certificate from the manufacturer “ for the rated lifetime at least 5,000hours, JCI verified with the certificate for the listed project lamps. /7.20//7.21//7.22/ , in which the performance were tested with the international standard at the manufacturer, and were authorized by Operations Director of the product. The validity of the Manufacturer Certification was crosschecked with the 3 <sup>rd</sup> party Testing Verification issued by Lighting Africa for the listed project lamps. /7.23//7.24//7.25/ JCI also crosschecked with the test report by the manufacturer/7.11/, and verified that Relative luminous flux after 10,000 hour were 74%-79% (criteria over 70% in the Methodology/3.2/), thus fully complying with Para.3 of the Methodology /3.2/. The third party certificates will be verified also at verification time as noted FAR-2 of the Protocol of this Validation Report. Therefore the criteria are deemed sufficient. And the procedure complied with the Standard Para.14.(c)	
3b	The project lamps’ batteries shall have a charging efficiency of at least 50%	Certificate from the manufacturer
	<b>Justification by DOE</b> The Criterion 14 ensures through the contractual agreement that the CPAs have to deliver the BFP products which fulfill the performance specification with manufacturer certification. JCI verified the 1 <sup>st</sup> CPA with its CPA-DD-KE-01 that it included the specifications of project lamps’ battery charging efficiency at sections A.2.and B.2.. As for “Certificate from the manufacturer “ for the battery charging efficiency is at least 50% , JCI verified with the certificate for the listed project lamps. /7.20//7.21//7.22/ , in which the performance were tested with the international standard at the manufacturer, and were authorized by Operations Director of the product. The validity of the Manufacturer Certification was crosschecked with the 3 <sup>rd</sup> party Testing Verification issued by Lighting Africa for the listed project lamps. /7.23//7.24//7.25/ Therefore the project lamps comply with Para.3 of the Methodology /3.2/. The third party certificates will be verified also at verification time as noted FAR-2 of the Protocol of this Validation Report. Therefore the criteria are deemed sufficient. And the procedure complied with the Standard Para.14.(c)	
3c	The project lamps shall have a minimum of one year warranty which will cover free replacement or repair of any failed lamps, batteries and where applicable solar panels.	Warranty card.
	<b>Justification by DOE</b> The Criterion 14 ensures through the contractual agreement with CPA that CME has control of all records and information related to the implementation of individual CPAs, including the record of Warranty card . JCI verified with the contractual agreement ./6.3/ As for Criterion as “Warranty card “, CPA-DD-KE-01 under section B.2.included the warranty period, as planned by Operation and management plan of PoA-DD at A.4.4.1. Therefore the criterion is deemed sufficient. And this item 3c complied with Para.4 of the Methodology/3.2/, therefore complied with one of the conditions of the Standard Para.14.(c).	
3d	The CPA shall comprises activities that replace portable fossil fuel based lamps with LED-based lighting systems in residential and non-residential applications	Distribution plan
	<b>Justification by DOE</b> The Criterion 14 ensures through the contractual agreement with CPA’s responsibility of the	

## CDM Validation Report for Barefoot Power Lighting Programme

#	Eligibility criteria noted by CME at PoA-DD A.4.2.2.	Means of verification by CME
	distribution plan of the project lamps to replace portable fossil fuel based lamps as defined by PoA-DD under section A.2 /6.3/ The CPA-DD-KE-01 demonstrated the plan under section A.2 together with the baseline information in Kenya at Annex 3. Therefore the criterion is deemed sufficient.	
4	The start date of the CPA shall not be prior to the commencement of the validation of the PoA.	The start date of the CPA will be defined as the date on which the CPA starts distribution of project lamps under the PoA and shall not occur prior to the commencement of the validation of the PoA. Sales documentation such as invoices, receipts or warranty cards shall be provided as documentary evidence.
	<b>Justification by DOE</b> The criterion defined to check with the invoice of the project lamp for the CPA, and JCI confirmed with the 1 <sup>st</sup> CPA with its CPA-DD-KE-01 that it included the date at section A.4.2.1., which was not prior to the commencement of the validation of the PoA (07 September 2011) verified by the first sales invoice. /7.16/. Therefore the Criterion is deemed sufficient, and thus complied with the Standard Para.14.(d).	
5	The CPA meets all the applicability criteria of AMS III.AR (version 01)	Detailed assessment that the CPA meets all the eligibility criteria of AMS III.AR (version 01).
	<b>Justification by DOE</b> The criterion defined to check with CPA. JCI verified CPA-DD-KE-01 as an example, which demonstrated the assessment at Table 1 under section B.2.. The confirmation of the assessment with evidences are verified and justified as noted at other items of this Table 5, including technical and operational requirements at item 3, requirement pertaining to demonstration of additionality at item 6, conditions related to undertaking local stakeholders consultations and environmental impact analysis at item 7, requirement for monitoring at item 10, and baseline identification as demonstrated at Section 7.1.of this validation report. Therefore the Criterion is deemed sufficient, and thus complied with the Standard Para.14.(e).	
6	The CPAs meet the requirement pertaining to the demonstration of additionality.	
6a	For microscale CPAs, the CPA requirements stipulated in the <i>Guidelines for demonstrating additionality of microscale project activities</i> (version 04, EB 68, Annex 26) are as given below: “Type III project activities that aim to achieve emissions reductions at a scale of no more than 20 ktCO <sub>2</sub> e per year, are <u>additional</u> if any <u>one</u> of the following conditions is satisfied: (a) The geographic location of the project activity is a LDC/SID or special underdeveloped zone (SUZ) of the host country: SUZ is a region in the host country (zone, municipality or any other designated official administrative unit) identified by the Government in official notifications for development assistance including for planning, management, and investment satisfying any one of the following conditions using most	a).Emission reduction estimations  (i) Confirmation that the geographic location of the project activity is a LDC/SID or special underdeveloped zone (SUZ) of the host country: SUZ is a region in the host country (zone, municipality or any other designated official administrative unit) identified by the Government in official notifications for development assistance including for planning, management, and investment satisfying any one of the following conditions using most recent available data: <ul style="list-style-type: none"> <li>• The proportion of population with income less than USD 2 per day (PPP) in the region is greater than 50%;</li> <li>• The GNI per capita in the country is less than USD 3000 and the population of the region is among the poorest 20%</li> </ul>

## CDM Validation Report for Barefoot Power Lighting Programme

#	Eligibility criteria noted by CME at PoA-DD A.4.2.2.	Means of verification by CME
	<p>recent available data:</p> <ul style="list-style-type: none"> <li>The proportion of population with income less than USD 2 per day (PPP) in the region is greater than 50%;</li> <li>The GNI per capita in the country is less than USD 3000 and the population of the region is among the poorest 20% in the poverty ranking of the host country as per the applicable national policies and procedures</li> </ul> <p>(b) The project activity is an emission reduction activity with both conditions (i) and (ii) satisfied (see below);</p> <p>(i) Each of the independent subsystems/measures in the project activity achieves an estimated annual emission reduction equal to or less than 600 tCO<sub>2</sub>e per year; and</p> <p>(ii) End users of the subsystems or measures are households /communities /SMEs.</p>	<p>in the poverty ranking of the host country as per the applicable national policies and procedures</p> <p>or</p> <p>(ii) Emission reduction calculations showing estimated annual emission reduction of each independent subsystem and business plan indicating end users of the subsystems</p>
	<p><b>Justification by DOE</b></p> <p>The defined Criteria are deemed sufficient for a CPA to comply with requirement of <i>Guidelines for demonstrating additionality of microscale project activities</i>, thus complied with the Standard Para.14.(f) and Para.8.</p>	
6b	<p>For CPAs that do not meet the requirements of the <i>Guidelines for demonstrating additionality of microscale project activities</i>, additionality of a typical CPA shall be demonstrated using the simplified procedures for small-scale project activities as given in <i>Guidelines on the Demonstration of Additionality of Small-Scale Project Activities (Version 09.0)</i>. In line with the <i>General guidelines for SSC CDM methodologies</i> (version 18, EB 66, Annex 23), the project activity shall further use the <i>Non-binding best practice examples to demonstrate additionality for SSC project activities</i> (EB 35, Annex 34) and the <i>Guidelines for objective demonstration and assessment of barriers</i> (version 01, EB 50, Annex 13).</p> <p>More specifically, a typical CPA would not have occurred anyway due to the following barriers:</p> <p>The CPA is implemented in a country (or other geographical area) where fossil fuel usage for lighting purposes is prevailing practice.</p>	<p>a) Documentation of the common practice of fuel usage for lighting in the project region (e.g. based on representative sample surveys, official data or peer reviewed literature).</p> <p>b) Documentation of the common practice of the lighting technology used in the project region (e.g. based on representative sample surveys, official data or peer reviewed literature)</p> <p>c) Agreement between Barefoot Power Pty Limited and In Country Distribution Company that is distributing Barefoot Power products. If the In Country Distribution Company is not distributing Barefoot Power's products, proof that it is not a subsidiary of a multinational group and/or evidence to show that the project could not access appropriate capital without consideration of CDM revenues such as loan agreements/bank statements to show that CDM revenues were critical in approval of the loan and/or Emission Reduction Purchase</p>

## CDM Validation Report for Barefoot Power Lighting Programme

#	Eligibility criteria noted by CME at PoA-DD A.4.2.2.	Means of verification by CME
	<p>The CPA is implemented in a country (or other geographical area) where a less technologically advanced alternative to the LED based lighting systems is available, which is based on fossil fuel. It will further be demonstrated that the less technologically advanced alternative involves lower risks due to the performance uncertainty or low market share of the LED based lighting systems adopted.</p> <p>Finally, the CPA would not have occurred anyway due to one or more access-to-capital barriers. Existing barriers for access-to-capital can be demonstrated at various levels:</p> <ul style="list-style-type: none"> <li>• It can be demonstrated that the implementation of the CPA is consequential to the removal of the access-to-capital at the level of Barefoot Power (i.e. the CPA would not have been implemented if Barefoot Power would not have been able to raise the necessary capital for the development of its next generation of high-quality solar-based LED systems).</li> <li>• It can be demonstrated that CPA would not have been implemented due to lack of access to working capital at the distributor level.</li> <li>• It can be demonstrated that the CPA would not have been implemented due to lack of finance at the end-user level.</li> </ul>	Agreements
	<p><b>Justification by DOE</b></p> <p>The PoA-DD under section A.4.3. appropriately described all relevant additionality-related guidelines and standards, as well as the baseline information in the Host country, thus complying with the Standard Para.11. The procedures for small-scale project activities, the PoA-DD defined the criteria under section E.5., that the CPA is to demonstrate the baseline information as listed above (a ) and (b) , and also to comply with the contractual agreement with the CME (BFP) for the conditions to deliver the BFP project lamps, in addition to complying with the CPA's financial conditions as listed above (c).</p> <p>The CPA-DD-KE-01 for example , demonstrated with the required information under section B.3. and Annex3, that the PoA project would not have occurred at the CPA (SSK) level due to mainly "access-to-capital barrier".</p> <p>JCI assessed that such "access-to-capital barrier" of the CPA (SSK) was reasonable judging from that the project lamps of the proposed PoA activity were uniquely developed and manufactured and delivered by the CME (BFP) and each CPA will be only sales function either partly owned or fully owned by the CME company(BFP) as described at the PoA-DD section A.2. and verified during the on-site assessment/7.15/.</p> <p>The detailed assessment on the additionality for both CME level and CPA level are separately demonstrated at Section 8 (Additionality) of this validation report.</p> <p>Therefore the criteria for additionality of a typical CPA are deemed sufficient for a CPA to</p>	



## CDM Validation Report for Barefoot Power Lighting Programme

#	Eligibility criteria noted by CME at PoA-DD A.4.2.2.	Means of verification by CME
	comply with requirement of the Standard Para.7,9,11 , thus complying with the Standard Para.14.(f).	
7	The CPA shall conduct a local stakeholder consultation meeting and perform an environmental impact analysis.	a) Local stakeholder consultation meeting report as well as the meeting overview detailed in section D of the CPA DD. b) Environmental analysis carried out in line with local environmental laws and detailed in section C of the CPA DD.
	<b>Justification by DOE</b> The PoA-DD defined that both “ <i>Stakeholders’ comments and Due account</i> ” and “ <i>Environmental Analysis</i> ” will be done at SSC-CPA level, under sections C and D. The PoA-DD under section C analyzed the requirements by laws and regulations imposed in the host country for the activity of the PoA (No Environmental Impact assessment report is required in Kenya for the Project), thus JCI verified that the CME is capable of judging the requirement by the CPA with respect of environmental documentation requirement. /7.15//4.1/. JCI verified with the CPA-DD-KE-01 under section C that it has reviewed the relevant local environmental regulations for the PoA activity/4.1//4.2//4.5/, and the required actions have been implemented as more detailed demonstrated at Section 12 (Environmental impacts) of this validation report. JCI also verified with the CPA-DD-KE-01 under section D that it has implemented Stakeholder’s comment including the invitation step and summary of comments and how due account was taken appropriately,/7.1//7.2/ as more detailed demonstrated at Section 11 (Local stakeholder’s consultation) of this validation report. Therefore, the Criteria are deemed sufficient and this complied with the Standard Para.14(g)	
8	The CPA has not received funding from Annex I parties that results in a diversion of official development assistance	Confirmation letter from CPA entity that the CPA has not received funding from Annex I parties <u>or</u> confirmation letter from Annex I party that funding to the CPA does not result in a diversion of official development assistance.
	<b>Justification by DOE</b> The CPAs shall provide a Confirmation letter under this Criterion condition. JCI verified the CPA-DD-KE-01 under section A.4.5. declared that the CPA has not received any public funding from Parties included in Annex I parties and its affirmation letter was confirmed with the evidence/7.17/. Therefore, this criteria are deemed sufficiently established, and they comply with the Procedures, and the Standard Para.14.(h).	
9	The CPA targets households and SMEs that use fossil fuel lamps for lighting purposes	Business plan and distribution model.  Documentation of the common practice of fuel usage for lighting in the project region (e.g. based on representative sample surveys, official data or peer reviewed literature)
	<b>Justification by DOE</b> The PoA-DD under sections A.2. and A.4.3 defined the target group and their baseline information for the PoA activity. JCI verified the CPA-DD-KE-01 as an example of CPA and confirmed that CPA-DD-KE-01 under section B.2. and Annex3 defined distribution model and baseline information of target end-users, through official data and peer reviewed literature. Therefore the Criteria for inclusion of a CPA are deemed sufficient . Thus the procedure complied with the Standard Para.14.(i)	
10	For CPAs with project lamps that will claim emission reductions for up to seven years, the project activity will carry out a survey in the	Monitoring manual of CPA that includes the description of the sampling plan more specifically the sampling design, data to be

## CDM Validation Report for Barefoot Power Lighting Programme

#	Eligibility criteria noted by CME at PoA-DD A.4.2.2.	Means of verification by CME
	<p>third year of the CPA's crediting period to determine the percentage of project lamps distributed to end users that are operating and in service.</p> <p>The CPA entity shall put in place a system to record data and information about the end users to allow for sampling in year three of the crediting period of the CPA. At a minimum the information should include:</p> <ul style="list-style-type: none"> <li>• Contact details of end user</li> <li>• Location of end user</li> <li>• Serial number of the project lamp</li> </ul>	<p>collected and implementation plan in line with version 02.0 of the <i>Standard for sampling and surveys for CDM project activities and programme of activities</i> (EB 65, Annex 2).</p> <p>A sampling plan detailed in section B.6.1 of the CPA DD in line with version 02.0 of the <i>Standard for sampling and surveys for CDM project activities and programme of activities</i> (EB 65, Annex 2).</p>
	<p><b>Justification by DOE</b></p> <p>The PoA-DD defined the Monitoring Plan for the PoA activity under section A.4.4.2 , and also the monitoring plan for a SSC-CPA under section E.7.2. The record keeping of the end users' data of the project lamps defined at the Monitoring Plan is under each CPA, but the data analysis and ERs calculation are under CME including the sampling design during the 3<sup>rd</sup> year operation according to the Standards for sampling and surveys/3.4./ The role of each CPA for record keeping as well as for preparation of the monitoring manual including a sampling plan are to be defined at CPA-DD-KE-01 under section B.6. 1.</p> <p>The actual CPA-DD-KE-01 under section B.6. 1. , however did not include a sampling plan because of the applied the project lamps types (Option 1 ), thus complying with the methodology. JCI verified that such monitoring procedure and sampling procedure under the PoA were reasonable and appropriate in accordance with the Standards for sampling /3.4./ , the Methodology /3.2/ as well as the Standard Para.14(j) .</p> <p>Therefore the Criterion is deemed sufficient.</p>	
11	The annual emission reductions achieved by the CPA will not exceed 60 ktCO <sub>2</sub> e	Emission reduction estimations
	<p><b>Justification by DOE</b></p> <p>The Criterion is sufficiently objective as the condition.</p> <p>JCI verified the CPA-DD-KE-01 as an example of CPA that the annual ERs at CPA-DD-KE-01 A.4.4.was calculated with adequate application of the parameters /1.8/ (as specified PoA-DD under section E.6.) and was under the limit under the Methodology (60 ktCO<sub>2</sub>e throughout the crediting period).</p> <p>Thus the procedure complied with the Standard Para.14.(k) and the Methodology.</p>	
12	The CPA is not a de-bundled component of a large-scale project activity in accordance with the latest approved version of the <i>Guidelines on assessment of de-bundling for SSC project activities</i> .	De-bundling check carried in line with the latest approved version of the <i>Guidelines on assessment of de-bundling for SSC project activities</i> .
	<p><b>Justification by DOE</b></p> <p>The Criterion is sufficiently objective as the condition.</p> <p>JCI verified the CPA-DD-KE-01 as an example of CPA that the exemption condition from performing a de-bundling check described at CPA-DD-KE-01 A.4.6.was calculated adequately from the emission value per project lamp in the ERs./1.8/</p> <p>Thus the procedure complied with the Standard Para.14.(l) and the Guidelines.</p>	
13	The LED based lighting systems distributed by the CPA will be charged solely by a renewable	Technical specifications of the project lamps that are distributed by the CPA.

## CDM Validation Report for Barefoot Power Lighting Programme

#	Eligibility criteria noted by CME at PoA-DD A.4.2.2.	Means of verification by CME
	energy system.	
	<b>Justification by DOE</b> The Criterion 14 ensures through the contractual agreement with CPA that CME has control of the technical specifications of the project lamps that are distributed by the CPA, including the LED based lighting systems are charged solely by a renewable energy system. JCI verified with the contractual agreement ./6.3/ The CPA-DD-KE-01 declared the specifications of the LED at sections A.2.and B.2., which JCI confirmed to comply with Methodology Para.2(a). thus with the Standard Para.14.(e). Therefore the Criterion is deemed sufficient.	
14	The CPA entity has signed contractual agreements with the CME to participate in the PoA. Those agreements will include all rights and responsibilities of both parties, e.g. approval procedures by the CME, monitoring requirements, emission reduction transfer and benefit sharing. At a minimum the agreement shall ensure that the coordinating/managing entity will have control of all records and information related to the implementation of individual CPAs and will be in a position to ensure each CPA is being operated in accordance with the specific requirements of the programme.	Agreement between CME and entity implementing the CPA.
	<b>Justification by DOE</b> The PoA-DD defined under section A.2. that the contractual agreements between CME and CPA for the activities under the PoA, which shall be checked by the CME. JCI justified that this Criterion is deemed to be sufficient and comprehensive, when applied for the condition for other items in this Table for inclusion of a CPA under the PoA. Thus the Criteria complied with the Procedures for PoA Para.6.(i). ./3.9/	

As justified by the note at the foot line of each corresponding items of above Table 5, JCI assessed that the eligibility criteria for inclusion of a CPA under the proposed PoA were demonstrated adequately according to the Standard./3.3/ In addition, as JCI assessed at the following section 6 (Operational and management plan) of this report, the operational and management arrangement demonstrated in the PoA-DD/1.2/ was sufficient that the CME could control the criteria for inclusion of a CPA of the PoA project, which was justified through the interview during the on-site assessment/7.15/ and the related documents.

## 6. Operational and Management Plan

JCI assessed the operational and management plan developed by the Coordinating and Managing Entity, Barefoot Power Pty Limited as a CME (hereafter referred to “the CME”,or “BFP”) for the proposed PoA, whether the distinct and transparent description of the operational and

**CDM Validation Report for Barefoot Power Lighting Programme**

management arrangement with its CPA entities were developed, through the document review and interviews and observation during the on-site assessment./7.15/

The first CPA under the CME's management is "Barefoot Power Lighting Programme SSK-KE-01", operated by "Smart Solar Kenya Limited" in Kenya (hereafter referred to "SSK").

JCI confirmed that Barefoot Power Pty Limited (BFP) as a CME developed the operating and implementing framework of PoA, including the roles and responsibility of each entity, BFP and SSK (CPA entity in Kenya), which are covered by the description at sections A.2., A.4.2.2 and A.4.4. of PoA-DD, and at section A.2. of CPA-DD-KE-01 . JCI validated such framework plan with the draft operation manual prepared by the BFP, and raised CL-8 and CL-10 in order to further substantiate a management system guided by Para.17 of the Standard./3.3/.

The CME has covered more specific management system for ensuring its competencies to check the features of CPAs and to check the requirements and eligibility criteria to be met with CPA for inclusion in the registered PoA, and demonstrated at section A.4.2.2 of PoA-DD/1.2/ .

JCI has assessed these elements of the management system according to Para.17 of the Standard./3.3/, as below.

- (a) The CME appointed a technical reviewer with its responsible role and function including the organization structure, which JCI verified with the Manual. /7.14.2/
- (b) The records of arrangements for training and capacity development of personnel was covered in the Manual /7.14.2/, which JCI confirmed adequate.
- (c) The procedure for technical review of inclusion of CPAs was stated in the PoA-DD under section A.4.2.2. as well as the Justification to be included by the CPA under section B.2. of CPA-DD-KE-01. JCI verified with the CPA-DD-KE-01 which described the technical specifications of the project lamps under section A.2. of CPA-DD-KE-01. The performance of these project lamps were confirmed to be certified with Operations Director of BFP after the manufacturer's test/7.20//7.21//7.22/, and such procedure was implemented by the CPA as verified by the CME through the contractual agreement. /6.3/ JCI also confirmed such procedure was covered in the Manual./7.14.2/
- (d) The procedure to avoid double counting was stated at the PoA-DD under section A.4.2.2., which would be implemented as already verified under Eligibility Criteria for CPA inclusion (Item 2) in Section 5 of this Report. JCI also verified such procedure was filed in the Manual. /7.14.2/
- (e) The records and documentation control process was stated at the PoA-DD under section A.4.2.2., which JCI verified with the Manual. /7.14.2/
- (f) The internal audit procedure as the measures for continuous improvements of the PoA management system was described in the PoA-DD under section A.4.2.2., which JCI verified with the Manual. /7.14//7.14.2/

JCI concluded the framework plan, as evidenced by the manual between the CME and CPA entities/7.14.2/ and also by the contractual agreement /6.3/, was practical and complying with the latest Standard/3.3/ and the Procedure./3.9/

JCI also confirmed that BFP as a CME planned management system demonstrated in details under section A.4.2.2 of PoA-DD/1.2/, which were reflected to B.2. of CPA-DD-KE-01 “Justification of why the SSC CPA is eligible to be included in the Registered PoA”, and also to B.6.1. of CPA-DD-KE-01 “Description of the monitoring plan”.

As the result of assessment on the eligibility criteria for inclusion of a CPA under the proposed PoA, JCI determined the eligibility criteria were sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the proposed PoA .

## **7. Baseline and monitoring methodology**

### **7.1 Applicability of selected methodology to the project activity**

JCI assessed for the applicability of selected methodology AMS-III.AR though taking into consideration on following steps in accordance with the paragraph 76 of VVM.

1) Step-1 Document review:

After reviewing the PoA-DD, CPA-DD, the emission reductions calculation sheet and related documents such as technical specifications, JCI had issued the Initial Findings prior to the on-site visit for the preparation at on-site interviews.

2) Step-2 On-site visit observations/inspection:

JCI reviewed the design data, relevant laws/regulations/codes, evidences, etc at the on-site interviews and conducted the site observation/inspection of the physical site or the project lamps and conventional kerosene lamps to confirm the project activity.

3) Step-3 Further follow-up actions and correspondences with the project participant on the Protocol to close the CARs and CLs:

The estimated Emission Reductions in the Section A.4.4. of CPA-DD-KE-01/1.6/ was reviewed and JCI confirmed they complied with the SSC threshold.

JCI validated and concluded that application of AMS-III.AR version 01/3.2/ to the project activity was appropriate after clarifications with the project participant as shown at the below applicability's check in Table 7.

The Table 7 included the justification by DOE to Qualification of the PoA activity under the methodology as well as Justification by DOE to Compliance of the 1<sup>st</sup> CPA under the methodology, and concluded that the revised CPA-DD-KE-01 as well as the revised PoA-DD have appropriately covered all related paragraphs of AMS-III.AR version 01/3.2/ for applicability assessment of the PoA Project.

## CDM Validation Report for Barefoot Power Lighting Programme

Table 7. Applicability's check for the project

Para No.	AMS.III.AR requirement	Qualification of the PoA activity / Compliance of the CPA
1.	<i>This category comprises activities that replace portable fossil fuel based lamps (e.g. wick-based kerosene lanterns) with LED based lighting systems in residential and non-residential applications (e.g. ambient lights, task lights, portable lights).</i>	The project activity involves the distribution of LED based lighting systems that replace the use of portable fossil fuel based lamps. The application and target end user group were clearly described as “households and Small and Medium Enterprises (SMEs)” at section A.2. of PoA-DD, and section A.2. of CPA-DD-KE-01.
	<b>Justification by DOE : applicable</b> The baseline fact in the host country was demonstrated both PoA-DD and CPA-DD-KE-01 ,which JCI confirmed by published documents /5.1/ /5.2//5.3//5.6/	
2.	<i>This methodology is applicable only to project lamps whose batteries are charged using one of the following options: (a) The project lamps shall use rechargeable batteries charged by renewable energy systems (photovoltaic system)</i>	All project lamps distributed under the project activity are solely charged by renewable energy systems, e.g. photovoltaic systems, as described at section A.2. of PoA-DD, also at section A.2.CPA-DD-KE-01.
	<b>Justification by DOE : applicable</b> They were confirmed by the technical specifications, which is controlled by the CME(BFP) and their specifications was listed at section A.2.CPA-DD-KE-01, which complied with Para.2 (a) of Methodology	
3.a	<i>At a minimum project lamps shall be certified by their manufacturer to have a rated average life of at least 5,000 hours. Rated average life is the life certified by the manufacturer or responsible vendor as being the time at which the lamp.s initial light output will decline by no more than 30%.</i>	Project lamps have a minimum average life of at least 5,000 hours as certified by the manufacturer. The rated average life are fulfilled as a time at which more than 70% of the initial light intensity are maintained.  The technical review is managed by the CME as demonstrated at section A.4.2.2. of PoA-DD, and the actual specifications are listed at section A.2 of CPA-DD-KE-01
	<b>Justification by DOE : applicable</b> The claimed performance was verified with the evidence /7.11/ (Product quality report ). The evidence showed the performance about the rated average life was fulfilled in compliance with Para.3 of the Methodology. The manufacturer certification for all types of the listed project lamps in the revised CPA-DD-KE-01 /7.20//7.21//7.22/ were verified and satisfactory for the required rated life. The validity of the manufacturer certification was already demonstrated at 3a of Table 5 (Eligibility Criteria Check) of Section 5 of this report.	
3.b	<i>In addition, the manufacturer shall certify that the project lamps. battery charging efficiency, at the time of purchase, is at least 50%.</i>	The battery charging efficiency of the project lamps at the time of purchase is at least 50%, as certified by the manufacturer.
	<b>Justification by DOE : applicable</b> The claimed performance was verified with the evidences /7.20//7.21//7.22/ (manufacturer certification ) for all types of the listed project lamps in the revised CPA-DD-KE-01	
4.	<i>Project Lamps shall have a minimum of one year warranty which covers free replacement or repair of failed lamps, batteries and where applicable solar panels</i>	All project lamps distributed under the project activity have a minimum one-year warranty, which covers free replacement or repair of any failed lamps, batteries and solar panels, as specified at section B.2.of CPA-DD-KE-01 and at section A.4.2.2. of PoA-DD
	<b>Justification by DOE : applicable</b> The responsibility of the CPA entity will be controlled by the CME as defined at Eligibility Criteria	

## CDM Validation Report for Barefoot Power Lighting Programme

Para No.	AMS.III.AR requirement	Qualification of the PoA activity / Compliance of the CPA
	( item 3c. ) of the PoA-DD, thus this requirement is verifiable.	
5.(a)	<i>The project design document shall explain the proposed method of distribution of project lamps. It shall also explain how the proposed project activity will:</i> a) <i>Ensure that the replaced baseline lamps are only those directly consuming fossil fuel. This can be done through documentation of the common practice of fuel.</i>	Method of distribution of project lamps is explained at sections A.2. and A.4.4.1.of PoA-DD and section A.2.of CPA-DD-KE-01  The local information about replaced baseline lamps were described at section A.4.3.of PoA-DD according to the published documents, also at Annex 3 of CPA-DD-KE-01.
	<b>Justification by DOE : <u>applicable</u></b> The method of distribution was appropriately defined, and the baseline lamp utilization at the host country was verified by CL-7 and by the on-site visit /7.15/, and confirmed by published documents /5.1//5.2//5.6/	
5.(b)	<i>b) Eliminate double counting of Emission Reductions, for example due to LED manufacturers, suppliers of solar and/or battery equipment, or others claiming credit for Emission Reductions for the project lamps. At a minimum project lamps shall be marked as CDM project lamps;</i>	All project lamps shall have a unique identification so that it is marked as being within the CPA, as documented at sections A.4.2.2.and A.4.4.1 of PoA-DD, and section B.2. of CPA-DD-KE-01. The measures are that " Project lamps distributed by the CPA have a serial number and CPA code marked on their casing", and "The CPA implementing entity has signed an agreement with the CME confirming that the CPA has not yet been included in another Programme of Activities or has not yet been registered as a single CDM project activity."
	<b>Justification by DOE : <u>applicable</u></b> All project lamps will have unique identifications, and the measures to avoid double counting was defined at Eligibility Criteria ( item 2.) of the PoA-DD under section A.4.2.2., thus this requirement is verifiable.	
5.(c)	<i>Ensure compliance with prevailing regulations pertaining to use and disposal of batteries.</i>	The compliance with the local regulations in the host country were stated at CPA-DD-KE-01 under sections C.2. and C.3.by referring the corresponding regulation codes.
	<b>Justification by DOE : <u>applicable</u></b> The applied regulations were confirmed with the evidences /4.1//4.2/, and their implementation by the CPA was verified with the import certificate of project lamps /6.2/ and the battery disposal contract with the certified laboratory./6.1/	
6.	<i>The project design document shall include design specification of project lamps such as:</i> <i>(a) Lamp wattage (in Watts) and illuminance (in lux);</i> <i>(b) Lamp rated lifetime (in hours);</i> <i>(c) Where applicable type and the rated capacity of renewable energy equipment for charging the battery (in Watts);</i> <i>(d) Type (e.g. NiMH, Lead-Acid, Li-ion), and rated capacity of the battery (in Ampere Hours);</i>	The all required technical specifications of the project lamps from (a) to (i) (except (h)) have been included in section A.4.2.1. of PoA-DD and in section A.2. of CPA-DD-KE-01 for the project lamps, which were confirmed to comply with specifications of AMS III.AR ver. 01.

## CDM Validation Report for Barefoot Power Lighting Programme

Para No.	AMS.III.AR requirement	Qualification of the PoA activity / Compliance of the CPA
	<p>(e) Type of charge controller (e.g. active or passive);</p> <p>(f) Autonomous Time and Daily Burn Time;</p> <p>(g) Where applicable (with solar energy charging systems) maximum, minimum and average monthly Solar Fraction values during the year;</p> <p>(h) Where applicable grid charging time;</p> <p>(i) Physical protection against weather impacts (e.g. rain, heat, insect ingress).</p>	
	<p><b>Justification by DOE : applicable</b></p> <p>The technical specifications of the revised CPA-DD-KE-01 under section A.2.were reviewed to comply with the requirements at Para.6 of AMS III.AR ver. 01.</p>	
7.	<p>The project activity shall restrict the number of project lamps distributed through the project activity to no more than five per household (for residential applications) or per business location (e.g. for commercial applications such as shops)</p>	<p>The restriction of the numbers of project lamps distributed through the project activity to no more than five project lamps per household (for residential applications) or per business location (e.g. for commercial applications such as shops) is controlled by a check box replying to whether the 'Number of Project Lamps in use in end-user's household is more than 5' will be on the warranty card. If the end-user is utilising 5 or more project lamps, the box must be checked, and emission reductions would not be claimed for these lamps. Such measures are recognized in the PoA-DD under section A.4.4.1. and CPA-DD-KE-01 under section B.2.</p>
	<p><b>Justification by DOE : applicable</b></p> <p>The measures to restrict to no more than five project lamps per household was controlled by the note in a Warranty Card for the end user (described at section A.4.4.1 of PoA-DD), and monitored through the sales record by the CME as well as through Monitoring Information for each CPA during verification period (described at section Annex.4 of CPA-DD-KE-01)</p> <p>Thus the implementation is deemed verifiable to comply with the condition for Para.7 of the Methodology</p>	
8.	<p>Measures are limited to those that result in emissions reductions of less than or equal to 60 k ton CO2 equivalent annually.</p>	<p>The ex-ante annual ERs of each CPA is reported in CPA-DD-KE-01 under sections A.4.4.and B.5.</p>
	<p><b>Justification by DOE : applicable</b></p> <p>The ex-ante annual ERs of CPA-DD-KE-01 was confirmed to be less than 60 k ton CO2 equivalent annually. JCI also confirmed that the ERs/1.8/ for the revised CPA-DD-KE-01was accurate. The scale limit of each CPA will be monitored and controlled by the CME as defined Eligibility Criteria ( item 7.) of the PoA-DD under A.4.2.2., thus this requirement is verifiable.</p>	
9.	<p><b>LED Lamp Effective Useful Life</b></p> <p><i>Under Option 1 : Project Lamps are assumed to operate for two years after project lamp distribution to the end-users, therefore emission reductions can only be claimed for two years.</i></p> <p><i>Under Option 2 :Project Lamps are assumed to operate for seven years after project lamp distribution to the end-users,</i></p>	<p>Project Lamps distributed will either operate for two years after they have been distributed to end users or seven years after they have been distributed to end users with the conditions met with the regulated para.10 and/or para.11 of the applied methodology was described under section E.2. of PoA-DD.</p> <p>The actual case for the revised CPA-DD-KE-01 was under <i>Option 1</i> as specified with the technical specification at section A.2. of the revised CPA-DD-</p>



## CDM Validation Report for Barefoot Power Lighting Programme

Para No.	AMS.III.AR requirement	Qualification of the PoA activity / the CPA	Compliance of
	<i>and thus emission reductions can be claimed for up to seven years per project lamp, if all the following conditions for the project lamps are met: from (a) to (e) as regulated Para.11 of the applied methodology</i>	KE-01.	
	<b>Justification by DOE : <u>applicable</u></b> The special technical specifications for the project lamps claimed as Option 1 described at the revised CPA-DD-KE-01 under section A.2.were reviewed and justified as complying with the requirements at Para.10 of AMS III.AR ver. 01.		

Therefore, JCI confirmed that the demonstration in the PoA-DD regarding the application of methodology AMS-III.AR.. version 1.0 to the project activity is appropriate, which also ensured the requirement of the eligibility criteria specified by Para.14 (e) and (k) of the Standard./3.3/

## 7.2. Project boundary

JCI confirmed the PoA is located within the geographical boundaries of Republic of Kenya, and the first specific CPA (CPA- BFP SSK-KE-01) was implemented within the physical boundary of Republic of Kenya, in which the project lamps will be distributed in the individual households and Small and Medium Enterprises (SMEs) to replace the kerosene lamps which have been the emission sources.

Thus, JCI confirmed and concluded that the identified boundary for the PoA and the one specific CPA (BFP SSK-KE-01) and the selected sources and gases were justified for the project activity.

### De-bundling for SSC project activities

JCI has done the de-bundling check according to the paragraph 2, Annex 13 of EB54 “Guidelines on Assessment of Debundling for SSC Project Activities”, as stated in the Section A.4.6. of CPA-DDs (BFP SSK-KE-01).

JCI confirmed and concluded that the specified project BFP SSK-KE-01, was not de-bundling component from the following viewpoints of the above requirements through the interview at on-site and related documents,

*If there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity;*

- (g) *With the same project participants;* No SSC project with Barefoot Power Pty Limited (the CME)
- (h) *In the same project category and technology/measure;* No Solar LED Lamp project
- (i) *Registered within the previous 2 years;* Two SSC project were registered within past 2 years

## CDM Validation Report for Barefoot Power Lighting Programme

in Kenya, but not under (a), (b).

- (j) *Project boundary is within 1 km of the project boundary of the proposed small- scale activity at the closest point.*: No SSC project within 1 km of the project boundary

JCI has also confirm the de-bundling according to the paragraph 10, Annex 13 of EB54 “Guidelines on Assessment of Debundling for SSC Project Activities” from the different viewpoint on descriptions as above in the Section A.4.6. of the CPA-DD-KE-01 (for BFP SSK-KE-01).

JCI confirmed and concluded that the specified project BFP SSK-KE-01 was not de-bundling component from the following viewpoint through the related documents,

- *subsystemms/measures (e.g., solar home system) included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the methodology applied, then that CPA of PoA is exempted from performing de-bundling check i.e., considering as not being a debundled component of a large scale activity. ”*

As described in the Section A.4.6 of CPA-DD-KE-01 /1.6/, under the PoA Project in Kenya, one project lamp was estimated as 0.11 tCO<sub>2</sub>/y, much less than 1 % for the thresholds (600 tCO<sub>2</sub>/y ). Consequently, the de-bundling check was not required for the CPA.

Accordingly the BFP SSK-KE-01, under the proposed PoA Project can be concluded not a de-bundled component of a large scale project activity.

## 7.3 Application of baseline and monitoring methodology

### 7.3.1. Baseline scenario

JCI validated for the baseline scenario whether the approved baseline methodology has been correctly applied or not, and the baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity in accordance with the paragraphs 87(e) of VVM taking the specific features of the AMS-III.AR into consideration.

JCI have reviewed all related materials stated in the PoA-DD/1.2/ and regarding the identification of the baseline for the proposed PoA.

And during the on-site visit, JCI observed the real situation of the utilization of kerosene lamps as baseline scenario for most of households both in Kenya.

JCI validated and confirmed that the baseline scenario was properly determined in the PoA-DD and in the CPA-DD-KE-01.

### 7.3.2. Project emissions (PE<sub>y</sub>)

JCI assessed the Project Emissions ( $PE_y$ ) according to the approved methodology AMS-III.AR, version 01.

Since the batteries of project lamps are charged using photovoltaic (solar) systems, option for paragraph 2 (a) of AMS-III.AR. was selected and applied, subsequently, there are no project emissions ( $PE_y = 0$ ) according to the Paragraph 15. of AMS-III.AR.

JCI confirmed with the specification of the project lamps and real products during the on-site assessment, and concluded that the project lamps are fully charged by the solar system.

JCI confirmed and concluded that the estimation on project emission ( $PE_y$ ) as zero as described in the Section E.6. of PoA-DD and B.5.2 of generic CPA and CPA-DD-KE-01 complied with the approved methodology.

### 7.3.3 Baseline emissions ( $BE_y$ )

JCI assessed the Baseline Emissions ( $BE_y$ ) according to the paragraph 12 to 14 of approved methodology AMS-III.AR, version 01.

JCI confirmed following equation (2) in paragraph 13 of AMS-III.AR. is properly applied for the Baseline Emissions calculation in the DDs.

$$BE_y = DV \times GF_y \times DB_y \quad \text{[Equation (2) in AMS-III.AR.]}$$

#### **DV : Emissions factor (tCO<sub>2</sub>e) and DB<sub>y</sub> : Dynamic Baseline Factor**

The PoA-DD described that each CPA might use alternative values for determination of  $DV$  value by referring Para.14 (Alternative values from Default Emission Factor as 0.08 tCO<sub>2</sub>e /lamp could only be used when adequate information available), and to use  $DB_y$  for Option 2 project lamp when recent fuel usage data are available. JCI judged such alternative by the proposed PoA was reasonable by complying with the methodology Para.12,13.14. /3.2/

The CPA-DD-KE-01 selected  $DV = 0.11$  tCO<sub>2</sub>e /lamp by taking 5 hours per day as Utilization rate by adopting the survey data for Kenya conducted by Lighting Africa initiative /5.1/, which JCI judged reasonable and credible complying with the methodology Para.14,/3.2/ through by confirming with this published information. The CPA-DD-KE-01 selected the default values specified by Para.12 of the methodology for other element values except the above mentioned Utilization rate for determining  $DV$ .

The leakage was considered as the element in the equation of Baseline Emissions according to the approved methodology AMS-III.AR, and the leakage factor was used as 1.0 for the calculation in DDs according to AMS-III.AR.

## CDM Validation Report for Barefoot Power Lighting Programme

Default value  $GF_y = 1.0$  was used for the calculation of Baseline Emissions in DDs according to the AMS-III.AR

The summary of the adopted values for  $DV / DB_y / BE_y$  in the CPA-DD-KE-01 are shown the below Table 8, which JCI justified as reasonable and complying the methodology by cross-checking public information. /5.1//5.2//5.3//5.6/

**Table 8 Summary of  $DV / DB_y / BE_y$  values adopted in the DDs**

	Default values in AMS- III.AR	PoA-DD (Note A)	CPA-DD-KE- 01	Conclusion/ Evidence
Fuel use rate (FUR) liters/hour	0.025	0.025 (variable)	0.025	OK/ AMS-III.AR
Utilization rate (UR) hours/day	3.5	variable	5	OK Confirmed by Lighting Africa/5.1/ for CPA Kenya
Utilization (UT) days/year	365	365	365	OK AMS-III.AR
Fuel emissions factor (FEF) kgCO <sub>2</sub> /liters	2.4	2.4	2.4	ditto
Leakage factor	1.0	1.0	1.0	ditto
Number of fuel-based lamps replaced per project lamp:	1.0	1.0 (variable)	1.0	ditto
Net-to-Gross factor	1.0	1.0	1.0	ditto
$DV$ tCO <sub>2</sub> e / lamp	0.08	Calculated by the above element values	0.11	OK CPA(Kenya) by UR value
$DB_y$	1.0	(variable)	1.0	OK AMS-III.AR
$GF$ (grid factor)	1.0	1.0	1.0	ditto
$BE_y$ tCO <sub>2</sub> e / lamp/y	0.08	0.08	0.11	ditto

Note A : PoA-DD noted CPA could take alternative values from Default value for  $DV$

Therefore JCI validated and concluded that the Baseline Emissions calculation in the DDs appropriately utilized the equation (2) of the AMS-III.AR. and applied adequate parameter selection.

### 7.3.4. Emission Reductions ( $ER_y$ )

JCI assessed the Emission Reductions ( $ER_y$ ) in the specific CPA (BFP SSK-KE-01), according to the paragraph 18 of approved methodology AMS-III.AR, version 01.

JCI confirmed following equation (4) in paragraph 18 of AMS-III.AR. is properly applied for the Emissions Reduction calculation/1.8/ in the CPA-DD-KE-01.

$$ER_y = \sum N_{i,j} \times (BE_y - PE_{y,i,j}) \times (OF_{y,i,j}) \quad [\text{Equation (4) in AMS-III.AR.}]$$

## CDM Validation Report for Barefoot Power Lighting Programme

Where:

$ER$  : Emission reductions in year  $y$  (tCO<sub>2</sub>e)

$N_{ij}$  : Number of project lamps distributed to end users of type  $i$  with charging method  $j$

$BE_y$  : Baseline Emissions , 0.11 tCO<sub>2</sub>e is calculated for CPA-DD-KE-01 as shown above

$OF_{y,i,j}$  : Percentage of project lamps distributed to end users that are operating and in service in year  $y$ , for each lamp type  $i$  and charging method  $j$ . Assumed to equal to 100% for years 1,2,3 in the CPA-DD-KE-01, and the value determined at the 3<sup>rd</sup> year (2014) for the year 4,5,6,7, for Option 2 project lamps. For Option 1 project lamps, 100% for 2 years.

Number of project lamps distributed to end users (under various product types sold in) and the ex-ante number of operation lamps ( $N_{ij}$ ) were planned throughout the whole period of the CPA-DD-KE-01 (10 years), by the spreadsheet with an assessable (unprotected) format/1.8/ according to the Guidelines on Completeness Check of Request for Registration”/3.14/

JCI validated the provided spread sheet/1.8/ by considering the technical specifications of the listed three product Types , and checked the correctness of the number of the project lamps to be sold in and the estimated number of operating of the project lamps under Option 1 (two years ), and concluded the ex-ante Emission reductions in the spread sheet /1.8/ was correct, therefore it was correctly shown as 9,749 tCO<sub>2</sub> e as Annual average in the table at A.4.4.and B.5.3.of the revised CPA-DD-KE-01 ./1.6/

The PoA-DD and the CPA-DD-KE-01 defined the correction factor of each year,  $CF_{OD,y}$  , as an adjustment factor of actual operational days to be applied to equation (4) of CPA-DD-KE-01./1.6/ as well as in the spread sheet./1.8/ JCI verified the correctness of the ex-ante values of  $CF_{OD,y}$  and the subsequent of the emission reductions values for each project lamps and each year, and concluded the emission reductions estimated accurately in an appropriate manner according to the approved methodology.

The result of the emission reductions calculation for each CPA are shown the below Table 9.

**Table 9 Ex-ante Emission reductions of the CPA-DD-KE-01**

Year	CDM-CPA-DD-KE-01-01./1.6/
	$ER_y$
2012	2,646
2013	15,223
2014	30,611
2015	33,292
2016	15,280
2017	438
2018	0

## CDM Validation Report for Barefoot Power Lighting Programme

Year	CDM-CPA-DD-KE-01-01./1.6/
	ER <sub>y</sub>
2019	0
2020	0
2021	0
2022	0
Total emission reductions (tCO <sub>2</sub> e)	97,490
Total number of crediting years	10
Annual average emission reductions (tCO <sub>2</sub> e)	9,749

## 8. Additionality

### 8.1. Additionality of the Programme

JCI assessed on the additionality of the Project through the review of the PoA-DD and the CPA-DD-KE-01 and cross-checking of the evidences with the public information as well as discussion and observations during the on-site assessment.

The assessment has been implemented by applying the relevant additionality-related guidelines such as “Guidelines on the Demonstration of Additionality of Small-Scale Project Activities (Version 09.0) , EB68 Annex 27” /3.5/, “Guidelines for Objective Demonstration and Assessment of Barriers (version 01)”/3.7/, “General Guidelines for SSC CDM methodologies (version 18) ”/3.6/, “Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities (Version 01.0)”/3.3/, and “Guidelines for Demonstrating Additinoality of Microscale Project Activities (Version 04.0), EB68 Annex 26”/3.8/.

The CME of the Project, Barefoot Power Pty Limited (BFP) demonstrated “*assessment and demonstration of additionality*” at A.4.3.of the PoA-DD by,

- (a) “*The proposed PoA is a voluntary coordinated action,*”and then
- (b) “*If the PoA implementing a voluntary coordinated action, it would not be implemented in the absence of the PoA*”

JCI crosschecked with the environmental act in Kenya, “Kenya Environment Management Coordination Act /4.1/” , and justified that there are no policies or mandatory regulation in Kenya which require households or small and medium enterprises to use LED based lighting systems, therefore JCI concluded it was credible that the statement of the PoA-DD on the above subject (a) as the Project is a voluntary coordinated action.

## CDM Validation Report for Barefoot Power Lighting Programme

Regarding the above subject (b), JCI confirmed that the CME (BFP) adequately demonstrated at A.4.3. of the PoA-DD about the compliance with the additionality-related eligibility criteria by ensuring the relevant guidelines, also at E.5.1 and E.5.2. of the PoA-DD about more specific criteria of the relevant guidelines for each CPA (either for micro-scale/3.8/ or for small-scale activities /3.5/), as well as for CME level /3.7/, thus the proposed PoA-DD complied with the requirement of demonstration of additionality, required at Para.7 (CPAs not implemented), Para.8 (micro-scale activity), Para.9.(barrier assessment) of the Standard /3.3/, therefore complied with additionality-related eligibility criteria required at Para.13.(f) of the Standard./3.3/

As for the said requirement by Para.7 (the absence of CDM) and Para.9 (barrier assessment) of the Standard, the PoA-DD demonstrated the barrier assessment at A.4.3. of the PoA-DD that “the access-to-capital” at the CME level was a key barrier for implementing the Project.

The PoA-DD demonstrated that the fossil fuel based lamps are common in sub-Sahara Africa including Kenya, and the introduction of LED based lighting systems have faced technology upgrade for development and supplying higher quality with longer life and affordable price for the target customers who have experienced spoiled LED products.

JCI cross-checked the published information on various illumination devices in Kenya such as by Lighting Africa /5.1/, and specific needs of good quality of LED based lighting system in Kenya /5.4//5.6//5.7//5.8//5.9//5.13/, thus JCI validated that the demonstration steps at PoA-DD was conducted in an appropriate manner, providing the background information for the needs for development higher quality LED products through series of supply chain of the project lamps from manufacturers, wholesalers, small retailers, to end- user level.

Regarding the quantitative assessment on the barrier of the project owner, JCI assessed with the provided evidences such as the loan agreement/7.3/and the company’s financial data./7.4 / JCI assessed the yearly trend of capital amount and loan amount of the CME (Barefoot Power Pty Limited) from 2009 to plan for 2012 through its financial data./7.4/

The annual loan amount was found to increase gradually from the same level of its capital amount at 2009 and became about one and a half times amount of its capital amount at 2011.

These loans were reported as about forty small angel investors loans with standard loan agreement conditions, as well as the ODA Fund for the CME as stated at Annex 2 of PoA-DD, which JCI confirmed with the affirmation letter /2.3/ that this was “ not result in a diversion of the ODA Fund and remain separate from and not counted towards the financial obligations of the European Commission under UNFCCC.”

The PoA-DD demonstrated at A.4.3.about the needs of higher quality with longer life LED project lamps to meet the specifications of the applied methodology, therefore a significant amount (about three times of the averaged capital amount from 2009 to 2011) of the one specific loan was agreed effective from 2011, which JCI confirmed with the external evidence/7.3/ that required the CME’s obligation of obtaining necessary approvals for implementation its carbon credit strategy.

**CDM Validation Report for Barefoot Power Lighting Programme**

Therefore, JCI validated and concluded that this specific loan agreement/7.3/ with its conditions of the CDM had an significant impact on alleviating barriers demonstrated by the Project.

The sales amount expected for Kenya and Uganda, to which the project owner planned to apply for the CDM, would be about one third of the total sales amount of Barefoot Power Pty Limited, therefore it is apparent that this specific loan which is bound for the CDM projects (Kenya and Uganda) has an more than three times impact to applicable capital for operation in Kenya and Uganda among total operation of Barefoot Power Pty Limited.

In addition to the barrier of access-to-capital at CME level, JCI further assessed whether the proposed PoA would not be implemented at CPA level in the absence of CDM.

As described at PoA-DD under section A.2., the business plan and distribution model of the PoA project was that the project lamps were uniquely developed and manufactured and delivered by the CME (BFP) and each CPA will be only sales function either partly owned or fully owned by the CME company(BFP).

The CPA entities would not have occurred in the host country due to their access-to-capital barrier without the necessary capital raise by the CME, or due to no project lamps supply from the CME, because the CPA entities have to make the contractual agreements as defined at PoA-DD under sections A.2.(contractual agreement), A.4.2.2.(eligibility criteria for inclusion of CPA) and E.5.1. & E.5.2.(additionality for a SSC-CPA and Key criteria for assessing additionality of a SSC-CPA).

The CPA-DD-KE-01 also demonstrated such conditions for the inclusion of CPA under sections B.2. (Justification to be included in the PoA) and B.3. (Assessment and demonstration of additionality of SSC CPA ).

JCI verified that these conditions for inclusion of CPA were implemented with the 1<sup>st</sup> CPA (BFP SSK-KE-01) through its contractual agreement with the CME/6.3/, and the financial information of SSK (the 1<sup>st</sup> CPA in Kenya)/7.15/, thus concluded that the proposed PoA would not to be implemented at CPA level in connection with the CME (BFP) who has the barrier of access-to-capital as demonstrated above.

JCI assessed the finance barrier faced by the CME (BFP) through verifiable data and evidences/2.3//7.3//7.4/, also the same barrier faced by the CPAs could be verified by the CME through their contractual relation to the CME/6.3/ and financial conditions as the PoA-DD demonstrated at Eligibility Criteria for inclusion of CPAs, thus the PoA complied in accordance with Para.5 of “Guidelines for Objective Demonstration and Assessment of Barriers”/3.7/. Therefore JCI concluded that the PoA is implementing a voluntary coordinated action, and it would not be implemented in the absence of CDM due to its access-to-capital barrier.

## **8.2. The starting date of the CPA**

JCI confirmed by the first sales invoice document /7.16/ that the starting date of the project was identified as 09 December 2011 of the the specific CPA in Kenya (BFP SSK-KE-01) under the



## CDM Validation Report for Barefoot Power Lighting Programme

PoA as described at A.4.2.1. of CPA-DD-KE-01 , which was after the date of GSC (Global Stakeholders Consultation) of the Project as 07 September 2011.

JCI assessed the project timeline and confirmed that the starting date of the project was after the date of GSC, therefore, concluded that the Project complied with the condition for a CPA under the PoA project, according to the Procedures /3.9/.

## 9. Monitoring plan

JCI assessed the monitoring plan presented in the PoA-DD/1.2/ and CPA-DD-KE-01/1.6/ whether they complied with the requirements of the applied methodology (AMS-III.AR.. version 1.0) through the document review and interviews at on-site assessment.

### 1) Parameters to be monitored ex-post

JCI checked Data and parameters to be monitored by each CPA and Description of the monitoring plan for a CPA in section E.7 of the PoA-DD/1.2/ together with Operation, management and monitoring plan in section A.4.4 of the PoA-DD/1.2/, as well as Description of the monitoring plan in section B.6.1. of the CPA-DD-KE-01 /1.6/, with the relevant methodology, and confirmed that these parameters and procedures comply with those required to this kind of project.

Followings are the result of confirmation for the suitability of monitoring items and procedures including ex post monitoring survey provided in the applied monitoring methodology (AMS-III.AR.. version 1.0). /3.2/

Justification of the planned parameters in the DDs is shown in below Table 10, with comparison to the required parameters by the Methodology./3.2/

**Table 10. Comparison between required parameters and planned parameter in the DDs**

Required parameters by AMS-III.AR	Planned parameters in DDs	parameters	Justification
1. Number of project lamps distributed to end users	Number of project lamps to end users	$N_{i,j}$	OK
2. Data specified by Para.20(b) of Methodology for lamps per Option 2.	The date on which the lamps are distributed to end users	$DATE_{m,start}$	OK
3. Ditto	The date on which project lamps are manufactured	$DATE_{man,m}$ $DATE_{man,j}$	OK
4. The parameter at the Sampling survey	Percentage of project lamps under operation in the sample survey at the 3rd year of crediting period	$P_{usage}$	OK
5. Other data to unambiguously identify each recipient of a project lamp	Receipt and Warranty card signed by end user		OK

## CDM Validation Report for Barefoot Power Lighting Programme

Ditto	Quantity of lamps sold		OK
Ditto	Serial number of each lamp		OK
Ditto	Date of sale		OK
Ditto	The district code and Name of distributor or dealer		OK
Ditto	Customer details including		OK

In addition, the project participant stated that the data item 2 and 3 of the above Table 10 would be applied in case that the actual date of purchase is not available, by applying “Lag\_Time” defined in section E.6.2. of the PoA-DD/1.2/, which was agreed under the prescribed conditions at SSC WG36 (SSC\_609) /3.15/.

JCI cross-checked the note of SSC WG36 (SSC\_609) /3.15/, and justified the below equation can be applied under the said prescribed conditions to estimate  $DATE_{j,start}$  from the known data of “Lag\_Time” and  $DATE_{man,j}$ , where “Lag\_Time” could be estimated by the known data as defined in section E.6.2. of the PoA-DD/1.2/

$$DATE_{j,start} = DATE_{man,j} + \text{“Lag_Time”}$$

Thus, JCI confirmed that the monitoring parameters are appropriately planned according to Para.19, 20 and 21 of the approved methodology AMS-III.AR. /3.2/

## 2) Monitoring of Data/Parameter

The PoA-DD stated that the sampling plan for monitoring survey was designed in line with the *Standard for sampling and surveys for CDN project activities and programme of activities* /3.4/. The PoA-DD also stated the monitoring survey would be conducted in the third year of each CPA to determine the percentage of project lamps distributed to end users that are operating and in service.

JCI reviewed the sampling design steps described at E.7.2 of the PoA-DD/1.2/. The PoA-DD/1.2/ appropriately planned to determine "Percentage of project lamps under operation “ (  $P_{usage}$  ) by the sample survey at the 3rd year of crediting period, according to Para.21 of the Methodology./3.2/ However the project lamps of the revised CPA-DD(KE)/1.6/ were only Option 1 (defined at Para.10 of the applied methodology/3.2/), thus no confirmation by sampling test is required.

It's Survey Principle was justified with the requirement by Para.22 of the Methodology,/3.2/ as shown at the below Table 11.

## CDM Validation Report for Barefoot Power Lighting Programme

**Table 11. Justification on the sampling design of the planned Monitoring Survey of PoA-DD**

Planned criteria in PoA-DD		Justification by the required principles by AMS *, and STANDARD *
<i>A) Sampling Design Objectives</i>	Survey to determine P <sub>usage</sub> in the third year of each CPA	Comply with AMS.Para.22 (f), and STANDARD Appendix 3.
<i>Reliability requirement</i>	Confidence / precision 90/10	Comply with AMS.Para.22 (a)
<i>Target Population</i>	Recipients of project lamps	Comply with AMS.Para.1
<i>Sampling method</i>	Multistage sampling with a random selection of District and a random selection of recipients within District	According to STANDARD Para.12 and Appendix 2, and comply with AMS.Para.22 (b) and STANDARD Para.20(b)
<i>Sample size</i>	Equation specified in PoA-DD	Comply with AMS.Para.22 (a) and also with STANDARD para.20.
<i>Sampling Frame</i>	Recipients were recorded in the project data base which would be monitored with Annex 4 of PoA-DD	Comply with AMS.Para.22
<i>B) Data Field Management Objectives and Data to be collected</i>	Survey by site visits in the third year of each CPA with Questionnaire listed in Annex 4 of PoA-DD	Comply with AMS.Para.22 (d) and (f), and by STANDARD Appendix 3.
<i>Quality assurance and quality control</i>	Samples draw by an independent entity, surveyed by trained surveyors, data review by one lead surveyor	Quality control and assurance was judged to be adequate mechanism for avoiding bias
<i>Procedures for administering Data Collection and Minimizing Non-sampling Errors</i>	Procedures to ensure to provide reliable data by training the independent surveyors	Procedures were adequate to ensure to provide reliable data
<i>Procedures to administer data collections</i>	Detailed survey procedures were listed.	Procedures to ensure to provide unambiguous data collections were confirmed with Questionnaire Template at Annex 4 of PoA-DD
<i>Procedures for non-</i>	Procedures to treat and cover	Comply with AMS.Para.22 (e)

## CDM Validation Report for Barefoot Power Lighting Programme

<i>response</i>	non-response replies	
<i>Data analysis</i>	The role for data analysis and data archives were defined	The frame was well defined
<i>Implementation</i>	The role of implementing Parties were defined	Implementation frame was well defined

Note \* : AMS refers to AMS -III.AR Version01./3.2/

STANDARD refers to Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities” (Version 02.0)./3.4/

The *Sample size* determination will be estimated by the following formula, which JCI justified as applicable to the sampling method for the proposed PoA activity as guided by STANDARD./3.4/ The each CPA will defined the parameters in case it applies the project lamps under Option 2 (defined at Para.11 of the applied Methodology/3.2/).

$$c \geq \frac{\frac{SD_B^2}{p^2} \times \frac{M}{M-1} + \frac{1}{u} \times \frac{SD_w^2}{p^2} \times \frac{(\bar{N} - \bar{u})}{(N-1)}}{\frac{0.1^2}{1.645^2} + \frac{1}{M-1} \times \frac{SD_B^2}{p^2}}$$

The DOE will validate the proposed sampling plan by each CPA which applies the project lamps under Option 2, in accordance with the requirement under Para.20 of STANDARD./3.4/

JCI confirmed the designed plan and procedures addressed in the PoA-DD were well managed and fully comply with Appendix 4 of the Sampling Standard/3.4 / also with Para.20, 21 and 22 of AMS-III.AR.version01. JCI further confirmed with the monitoring manual compiled by the project participant/7.14.2/, and judged the present CME (BFP) and CPA entity, SSK are capable to manage the monitoring plan by considering the present pre-marketing and sales activity observed and interviewed during the on-site assessment./7.15/

## 10. Sustainable development

JCI confirmed that the LoA issued by DNA of the host party/2.1/; Republic of Kenya confirmed the contribution of the proposed CDM project activity to the sustainable development of the host Party, which has been already described in Section IV 1. Approval and 2. Participation.

## 11. Local stakeholders' consultation

According to the description in Section D. of PoA-DD/1.1/, the Local Stakeholders' Consultation was done at CPA level.

## CDM Validation Report for Barefoot Power Lighting Programme

Meanwhile in the sections D.2./D.3./D.4. of the CDM-SSC-CPA-DD-KE-01, the details of public notification (notice by a national news paper ), stakeholders' meeting agenda and content including Q&A with the local stakeholders, and the attended background of local stakeholders were reasonably considered relevant for the Project and complete.

JCI confirmed with the detail information of the records as evidences related to stakeholders' consultation, including the photos of each meeting. /7.1//7.2/

The CPA-DD-KE-01 also covered how the project participant has taken due account of the comments raised during the stakeholders' consultation, focusing on the needs of further improvement of the technical performance of the project lamps, involvement of local communities in the distribution plan, incentives to end users, utilization of carbon credit revenue, and communication with the end users, among which JCI confirmed that the project participant has taken some steps through the interview during the on-site assessment./7.15/

JCI conducted the interview during the on-site assessment from 22 to 26 November 2011 with household families, small business manager, distributors, shop keeper in Maai Mahiu Town (about 80 km north from Nairobi city of Kenya).

The interviewed stakeholders participated to the LED lamp utilization and distribution, therefore JCI could sensor a part of the local stakeholders relevant for the Project.

Social, economical and ecological effects of the LED lamps have been confirmed with the meeting with the stakeholders and the interview and discussions./7.15/

Summary of the meeting is as follows.

- All of the households have been satisfied with stop of kerosene usage.
- All confirmed the benefit of LED lamp illumination with photovoltaic system.
- Interviewees stressed the positive effect on work environment at house or small business, extended time for students to do their home works, positive effect on expense of kerosene and positive effect on health. The LED lamps were also used in farm work and as safety torches.
- The interviewees explained the no access to public electricity supply nor benefit to connect grid supply due to its expense and supply quality.

The initial purchasing payment of the LED lamps with photovoltaic system was still a big amount for most of the average households, so most users applied a micro-finance for purchasing the lamps.

Based on the above, JCI confirmed and validated that the PoA is basically supported by the majority of local stakeholders, and gave no significant adverse impacts both on social and natural environment, and instead contributed to the improvement of environment and infrastructure.

## 12. Environmental impacts

The project reduces the consumption of non-renewable natural resources such as fossil fuels by replacing kerosene lamps with the LED project lamp, which consists of a LED lamp, a rechargeable battery and a photovoltaic panel as a set of unit.

Accordingly, there are no significant anticipated negative impacts on the environment and /or on people through this programme.

According to the description in Section C. of PoA-DD/1.1/, the environmental analysis was done at CPA level. The project will replace kerosene-based lighting with the designed solar lamps in Kenya.

In the section C.3. of CPA-DD-KE-01, it was described that the government of Kenya did not require an EIA or any other assessment (i.e. basic assessment, scoping report) for this type of activities by law.

JCI confirmed that the project activity complied with environmental regulations of the country./4.1 //4.2/

The other regulations in Kenya for the project activity to comply with were described at C.2. of the CPA-DD-KE-01, which JCI verified with the local regulations on disposal of batteries./4.2/

The import certificate of the project lamps with batteries would be collected by project participant to comply with Kenya Bureau of Standards /4.5 /, which JCI verified with the actual import certificates of the project lamps issued by Kenya Bureau of Standard dated 21/10/2011./6.2/

The project participant would also contract with the licensed recycling company in Kenya for disposal of the batteries according the local Environment Acts /4.1//4.2/, and JCI confirmed with the Minutes between the project participant and the licensed disposer/6.1/ for the disposal.

JCI validated and concluded that the project participant has committed himself to comply with the local requirement on the environmental regulations as stated in the CPA-DD-KE-01.

## 13. Comments by Parties, Stakeholder through the consultation process

SSC-PoA-DD version 01//1.1/, generic SSC-DD version 01/1.3/, and the first specific CPA (CDM-SSC-CPA-DD-KE-01) version 01/1.5/ were made publicly available on UNFCCC CDM website, and Parties, stakeholders and NGOs were through the website invited to provide comments during a 30 days period from 07 September 2011 to 06 October 2011.

And no comments were received.

End of document



## **APPENDIX A: CDM VALIDATION PROTOCOL (POA)**

(Version 04)

**Project name: Barefoot Power Lighting Programme**

### **1. INTRODUCTION**

This document is prepared as the Validation Protocol on **Barefoot Power Lighting Programme**

The validation protocol is prepared for the following purposes:

- To ensure that, in accordance with the Validation Verification Manual version 01.2 (Annex 1, CDM-EB55, "VVM"), CDM requirements and other relevant guidelines for PoA project issued by EB, these rules are complied with for any project activities requesting registration as a proposed PoA project.
- To ensure a thorough, independent assessment of proposed PoA project submitted for registration as a proposed PoA project activity against the applicable SSC-PoA requirements.
- To assess whether the project design of the proposed PoA project meets the SSC-PoA requirements, using objective evidence, and to assess the completeness and accuracy of the claims and conservativeness of the assumptions made in the project design document.

The validation protocol is consisted of the following two types of tables, which are effective for the purposes of validation above.

**TABLE-1** contains the checklist with questions along with the thematic chapter of VVM and other relevant guidelines for PoA project issued by EB.

**TABLE-2** shows the corrective actions or clarifications which are requested to be taken in **TABLE-1** and the response from the PP.

<Index>

**TABLE-1** Requirements Checklist ..... Page 1-1

**TABLE-2** Resolution of Corrective Actions and Clarification Requests ..... Page 2-1

### **2. CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS**

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

➤ **CAR** : a corrective action request (**CAR**) is raised, if one of the following occurs:

- (a) The PPs have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- (b) The SSC-PoA requirements have not been met;
- (c) There is a risk that emission reductions cannot be monitored or calculated.

➤ **CL** : a clarification request (**CL**) is raised,

if information is insufficient or not clear enough to determine whether the applicable SSC-PoA requirements have been met.

➤ **FAR** : a forward action request (**FAR**) is raised,

during validation to highlight issues related to project implementation that require review during the first verification of the project activity.

**FARs** shall not relate to the SSC-PoA requirements for registration.

The CARs and CLs are resolved or "closed out" only if the project participants modify the project design, rectify the design documents (DDs: PoA-DD, CPA-DDs) or provide adequate additional explanations or evidences that satisfy the requirements. If this is not done, the project activity will not be recommended for registration to the CDM EB.

All CARs, CLs and FARs will be reported on 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 DDs or supporting annexes.


 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme			

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
<b>1.</b>	<b>Approval</b>	Para.44-50 VVM	--	--
	<b>&lt;Requirement to be validated&gt;</b> All Parties involved shall approve the project activity.	Para.44 VVM	--	--
	The LoA (Letter of Approval) s of all parties involved shall be provided together with its information source and route.			
1.1	The LoA shall confirm that: (a) The Party is a Party to the Kyoto Protocol (b) Participation is voluntary (c) The proposed SSC-PoA project activity contributes to the sustainable development of the country (d) It refers to the precise proposed SSC-PoA project activity title in the SSC-PoA being submitted for registration	Para.45 VVM	Tbv (To be verified)	CAR-1 CAR-2
<b>2.</b>	<b>Participation</b>	Para.51-54 VVM	--	--
	<b>&lt;Requirement to be validated&gt;</b> Coordinating/managing entity and all other project participants shall be listed in a consistent manner in the project documentation, and their participation in the project activity shall be approved by a Party to the Kyoto Protocol.	Para.51 VVM	--	--
2.1	Coordinating/managing entity and all other project participants shall be listed in tabular form in section A.3 of the SSC-PoA-DD, and this information shall be consistent with the contact details provided in annex 1 of the SSC-PoA-DD.	Para.52 VVM	Tbv	CAR-1 CAR-2
1)	The participation of each project participant shall be approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve participation.	ditto	Tbv	CAR-1 CAR-2
3)	No entities other than those approved as project participants shall be included in these sections of the SSC-PoA-DD.	ditto	Tbv	CAR-1 CAR-2
2.2	The approval of participation shall be issued from the relevant DNA.	Para.53 VVM	Tbv	CAR-1 CAR-2
	<b>&lt;Requirement to be validated&gt;</b> The CDM Executive Board has provided guidance and procedures for registering a programme of activities (PoA) as a single CDM project activity <sup>52</sup> . In validating a PoA and any CDM programme activities (CPAs) proposed to be included in the PoA, the DOE shall, in general, apply the means of validation and reporting requirements described in this Manual. However there are a number of requirements unique to PoAs for which additional instructions are provided below, the precise extent of validation required in each of these areas will need to be determined by the DOE based on the type or PoA being validated. <sup>53</sup>  52 See EB 47 report, paragraphs 70 and 72, currently located at < <a href="http://cdm.unfccc.int/EB/047/eb47rep.pdf">http://cdm.unfccc.int/EB/047/eb47rep.pdf</a> >, for revised guidance and procedures on programmes of activities.  53 See EB 53 report, paragraph 40, currently located at < <a href="http://cdm.unfccc.int/EB/053/eb53_rep.pdf">http://cdm.unfccc.int/EB/053/eb53_rep.pdf</a> > for further information.	Para.165 VVM	--	--
2.3	Operational and management arrangements for the PoA	(a)	--	--





## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
1)	The DOE shall assess the operational and management arrangements which have been established by the coordinating/managing entity in order to determine whether these arrangements are suitable for the PoA being validated.	Para.166	OK	
2)	The arrangements shall be sufficient to ensure that the coordinating/managing entity will have control of all records and information related to the implementation of individual CPAs and will be in a position to ensure each CPA is being operated in accordance with the specific requirements of the programme.	Para.166	OK	
3)	Where the DOE considers the arrangements to be unsatisfactory or insufficient a CAR shall be raised and a request for registration shall not be submitted until the CAR has been resolved to the satisfaction of the DOE.	Para.166	OK	
2.4	Eligibility criteria for CPAs			
1)	The DOE shall assess the specified eligibility criteria in the POA-DD in order to determine whether or not these criteria are sufficient to ensure that all CPAs would comply with the CDM requirements applicable to the PoA, these requirements will include inter alia the means of demonstrating the additionality of the CPA and the applicability of the applied methodology.	Para.167	Tbv	CL-1
2)	The eligibility criteria represent an essential element of ensuring the smooth functioning of programmatic CDM, therefore the DOE may raise CARs which ensure the ease of application of the eligibility criteria.	Para.167	Tbv	CL-1
2.5	Validation of CPAs			
1)	The DOE shall assess any proposed CPA, which a coordinating/managing entity wishes to include in the PoA, to determine whether or not it complies with the eligibility criteria specified in the POA-DD.	Para.168	Tbv	CL-1 CL-9
2)	The means of validation to determine compliance with this requirement will be specific to the PoA. The DOE may consider a desk review of the documentation sufficient to determine compliance in certain instances and may also consider follow-up interviews and/or site visits necessary for other types of PoA.	Para.168	Tbv	CL-1
	<b>Requirements related to participation in the PoA</b>	EB 55 Annex 38		
2.6	The operators of individual CPAs are not required to be project participants. CDM programme participation is only recorded at the PoA level.		OK	
2.7	The coordinating/managing entity shall obtain letters of approval from each host Party and Annex I Party which wishes to be involved in the PoA. Letters of approval shall be issued in accordance with the guidance provided by the Board (EB 16 report, Annex 6).		Tbv	CAR-1 CAR-2
2.8	The coordinating/managing entity shall obtain letters of authorization of its coordination of the PoA from each host Party.		Tbv	CAR-1 CAR-2
2.9	The latest version of the .Procedures for modalities of communication between project participants and the Executive Board. shall apply, with the exception that the coordinating/managing entity shall be either sole or joint focal point for each area of communication. The limit of joint focal points for the programme shall be 5, or equal to the number of host Parties if greater than 5.		Tbv	CAR-3
2.10 1)	If, subsequent to the registration of the programme, the coordinating/managing entity has changed then the DOE who is		NA	


 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme			

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	undertaking the next inclusion of a CPA shall submit:			
2)	New letter(s) of authorization by the each respective host Party stating the change in coordinating/managing entity;		NA	
3)	A confirmation from new coordinating/managing entity that the PoA will be developed and implemented with the same set framework as originally described in the CDM-POA-DD; and		NA	
4)	A validation opinion by a DOE regarding the compliance of the new coordinating/managing entity with the requirements of paragraph 15 (c) below.		NA	
<b>3.</b>	<b>Project Design Document</b>	Para.55-57 VVM	--	--
	<b>&lt;Requirement to be validated&gt;</b> The SSC-PoA-DD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website. <a href="http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html">http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html</a>	Para.55 VVM  SSC-PoA-DDs Forms	--	--
3.1	The coordinating/managing entity shall submit to a DOE the following documentation: (a) A completed CDM-POA-DD; (b) A PoA generic CDM-CPA-DD, which specifies the generic information relevant to all CPAs that may be included in the PoA; (c) A completed CDM-CPA-DD which is to be based on the application of the PoA to one real case.	EB 55 Annex 38	OK	
3.2	The SSC-PoA-DD shall be in accordance with the applicable SSC-PoA requirements for completing SSC-PoA-DD. < <a href="http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html">http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html</a> >	Para.56 VVM	OK	
3.3 1)	SSC-PoA-DD template shall not be altered, that is, shall be completed using the same font without modifying its format, headings or logo. Tables and their columns shall not be modified or deleted. Rows may be added, as needed. If sections of the CDM-PoA-DD are not applicable, it shall be explicitly stated that the section is left blank on purpose.	SSC-PoA-DD Form	OK	
2)	The presentation of values in the SSC-PoA-DD, CPA-DD should be international standard format.  Note: A ttachment--1 and Attachment--2 shall be read at first and after the completion of the related documents to confirm the international standards and to avoid errors such as miss-writing and careless-mistakes in PDD, validation report and protocol.  Attachment-1: Summary of the International System of Units Attachment--2: List of standard variables of UNFCCC  (This note and Attachments shall be deleted before the Request for Registration.)	PDD Guideline Annex 1 List of standard variables	OK	
3.4	The validation report shall contain a statement regarding the compliance of the SSC-PoA-DD with relevant form. (See guidelines currently located at < <a href="http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html">http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html</a> >.)	Para.57	DOE will follow	



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. V/M	Check Comment	ID. No.
3.5	The DOE shall make the above documents publicly available on the UNFCCC CDM website in accordance with the latest version of the Procedures for processing and reporting on validation of CDM project activities.			
	<b>Preparation of a CDM-POA-DD</b> A coordinating/managing entity shall develop a PoA Design Document (CDM-POA-DD) setting a framework for the implementation of the PoA and unambiguously defining a CPA under the PoA. The CDM-POA-DD shall include the following information:	EB 55 Annex 38		
3.6 1)	Identification of the coordinating/managing entity, host Party(ies) and PoA participants	EB 55 Annex 38 Para. 6	Tbv	CL-13
2)	Definition of the boundary for the PoA in terms of a geographical area (e.g., municipality, region within a country, country or several countries) within which all CPAs included in the PoA will be implemented, taking into consideration all applicable national and/or sectoral policies and regulations within that chosen boundary are reflected in the determination of the baseline	ditto	Tbv	CL-1 CL-9
3)	Description of the policy/measure or stated goal that the PoA seeks to promote	ditto	OK	
4)	Confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity	ditto	OK	
3.6 5)	Demonstration that in the absence of the CDM either: (i) the proposed voluntary measure would not be implemented, or (ii) the mandatory policy/regulation would be systematically not enforced and that non-compliance with those requirements is widespread in the country/region, or (iii) that the PoA will lead to a greater level of enforcement of the existing mandatory policy /regulation. This shall constitute the demonstration of additionality of the PoA as a whole	ditto	Tbv	CL-6
6)	Description of a typical CPA that will be included in the PoA covering the technology or measures to be used, justification of the choice of an approved baseline and monitoring methodology (or combination of approved methodologies) <sup>1</sup> , application of an approved baseline and monitoring methodology  <small>1 Such combination will only be allowed once approved in accordance with .Procedures for approval of the application of multiple methodologies to a programme of activities.. If a combination of approved methodologies is being applied this combination must be applied to all CPAs and must be applied in a consistent manner.</small>	EB 55 Annex 38 Para. 6	Tbv	CAR-6
7)	Definition of eligibility criteria for inclusion of a project activity as a CPA under the PoA, which shall include, as appropriate, criteria for demonstration of additionality of the CPA, and the type and/or extent of information (e.g. criteria, indicators, variables, parameters or measurements) that shall be provided by each CPA in order to ensure its eligibility;	ditto	OK	
8)	Starting date and length of the PoA not exceeding 28 years (60 years for A/R);	ditto	OK	



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. V/M	Check Comment	ID. No.
9)	Description of the operational and management arrangements established by the coordinating/managing entity for the implementation of the PoA, including a record keeping system for each CPA under the PoA, a system/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as CDM project activity or as a CPA of another PoA, the provisions to ensure that those operating the CPA are aware and have agreed that their activity is being subscribed to the PoA;	ditto	OK	
10)	Description of a monitoring plan for a CPA, developed in accordance with the approved monitoring methodology, and identification of the monitoring provisions and data parameters a CPA has to apply/monitor;	ditto	OK	
11)	If the coordinating /managing entity does not wish to have all CPAs verified, a description of the proposed statistically sound sampling method/procedure to be used by DOEs for verification of the amount of reductions of anthropogenic emissions by sources or removals by sinks of greenhouse gases achieved by CPAs under the PoA; <sup>2</sup>  <i>2 The Board will develop a guideline containing criteria for determining statistically sound verification techniques and methods. Project developers are requested to take note that programmes which may be registered as a single CDM project activity prior to the adoption of this guideline will be required to comply with such criteria at the point of verification.</i>	ditto	Tbv	CL-10
3.6 12)	Environmental analysis of the PoA as per requirements of the CDM modalities and procedures. If this analysis is not undertaken for the PoA but is to be done at the CPA level this shall be described and reflected in the CDM-POA-DD and the CDM-CPA-DD;	EB 55 Annex 38 Para. 6	OK	
13)	If comments by local stakeholders were invited with regard to the total PoA, information on how comments by local stakeholders were invited, a summary of the comments received and how due account was taken of any comments received, as applicable. If such comments are to be sought at the CPA level this shall be described and reflected in the CDM-POA-DD and the CDM-CPA-DD;	ditto	OK	
14)	In case public funding is used a confirmation that official development assistance is not being diverted to the implementation of the PoA.	ditto	Tbv	CAR-4
3.7	<u>Preparation of the CDM-CPA-DD</u> The coordinating/managing entity shall prepare the PoA specific CDM Programme Activity Design Document (CDM-CPA-DD) <sup>3</sup> using the provisions of the proposed PoA. The template CDMCPA-DD provides for the submission of the following information:  <i>3 The latest version of the template form CDM-CPA-DD is available on the UNFCCC CDM web site in the reference/document section.</i>	EB 55 Annex 38		
3.7 1)	Geographic reference or other means of identification <sup>4</sup> , Name/contact details of the entity/individual responsible for the operation of the CPA;  <i>4 For example, in case of stationary CPA geographic reference, in case of mobile CPAs means such as registration number, GPS devices.</i>	EB 55 Annex 38 Para. 7	OK	
2)	The host Party;	ditto	OK	
3)	Starting date, type (fixed or renewable) and duration of the crediting period of the CPA taking into account that the starting date of a crediting period of the CPA shall be the date of its inclusion in the registered PoA or any date thereafter and that the duration of the crediting period shall not exceed the end date of the PoA;	ditto	Need correction	CL-3
4)	Confirmation that the start date of any CPA is not, or will not be, prior to the commencement of validation of the programme of activities, i.e.	ditto	Need correction	CL-3



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	the date on which the CDM-POA-DD is first published for global stakeholder consultation;			
5)	Information stipulated in the PoA for use by each CPA to demonstrate how it meets requirements with respect to: (i) Fulfilling the eligibility criteria specified in the CDM-POA-DD, including, as appropriate, the demonstration of the additionality of the CPA; (ii) Calculations of baseline emissions and estimated emission reductions by sources or removal by sinks of greenhouse gases.	ditto	OK	
3.7 6)	Environmental analysis as per requirements of the CDM modalities and procedures, unless the analysis may be undertaken for the whole PoA as reflected in the CDM-POA-DD;	ditto	OK	
7)	Information on how comments by local stakeholders were invited, a summary of the comments received and how due account was taken of any comments received, as applicable unless the comments may be sought for the whole PoA as reflected in the CDM-POA-DD;	EB 55 Annex 38 Para. 7	OK	
8)	Confirmation that the CPA is neither registered as a CDM project activity nor included in another registered PoA.	ditto	OK	
<b>4.</b>	<b>Project Description</b>	Para.58-64 VVM	--	--
	<b>&lt;Requirement to be validated&gt;</b> The SSC-PoA-DD shall contain a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.	Para.58 VVM	--	--
4.1	In section A.2 of the SSC-PoA-DD the following description shall be included: - the purpose of the project activity; - explain how the proposed project activity reduces greenhouse gas emissions (i.e. what type of technology is being employed, what measures are undertaken as part of the project activity, etc); - the view of the project participants on the contribution of the project activity to sustainable development	SSC-PoA- DD Form	OK	
4.2	In section A.4.2 of SSC-PoA-DD, followings are to be described; 1. Technology or measures to be employed by the SSC-CPA 2. Eligibility criteria for inclusion of a SSC-CPA in the PoA	ditto	Tbv	CL-4 CL-5
4.3	In section A.4.3 of SSC-PoA-DD, "Description of how the anthropogenic emissions of GHG by sources are reduced by a SSC-CPA below those that would have occurred in the absence of the registered PoA (assessment and demonstration of additionality)" shall be described.	ditto	OK	
4.4	In section A.4.4 of the SSC-PoA-DD, operational, management and monitoring plan for the programme of activities(PoA) shall be described. In case public funding from Parties included in Annex I to the Convention is involved, it shall be necessary to provide in Annex 2 information on sources of public funding for the project activity from Parties included in Annex I providing an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of those Parties.	ditto	OK	
4.5	In section A.4.5 of the SSC-PoA-DD, It shall be described In case public funding from Parties included in Annex I to the Convention is involved, it shall be necessary to provide	ditto	Tbv	CAR-4


 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme			

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	in Annex 2 information on sources of public funding for the project activity from Parties included in Annex I providing an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of those Parties.			
4.6	The DOE shall determine whether a proposed SSC-PoA project activity meets the requirements of the simplified modalities and procedures for small-scale CDM project activities. (See decision 4/CMP.1, annex II.)	Para.134	OK	
4.7	<p>During its validation of a SSC-PoA project activity, the DOE shall confirm that:</p> <p>(a) The project activity qualifies within the thresholds of the three possible types of small scale project activities. It may include more than one component; for example, a type III methane recovery component activity and a type I electricity component activity; (See CDM EB 28 report, paragraphs 56 and 57, currently located at &lt;<a href="http://cdm.unfccc.int/EB/028/eb28rep.pdf">http://cdm.unfccc.int/EB/028/eb28rep.pdf</a>&gt; for guidance on size limits for the components.)</p> <p>(b) The project activity conforms to one of the approved small-scale categories and applies the relevant tool or methodology. The DOE shall confirm that the small-scale methodologies are applied in conjunction with the general guidance to the methodologies, which provides guidance on equipment capacity, equipment performance, sampling and other monitoring-related issues;</p> <p>(Small-scale project activities that follow the simplified modalities and procedures for small-scale CDM project activities may not apply a large-scale approved methodology. However, a project activity that is within the small scale project activity thresholds may apply a large-scale approved methodology if it follows the modalities and procedures for large-scale project activities defined in footnote 1 above.)</p> <p>(The latest versions are located at &lt;<a href="http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html">http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html</a>&gt;. In the EB 44 report, paragraph 49, currently located at &lt;<a href="http://cdm.unfccc.int/EB/044/eb44rep.pdf">http://cdm.unfccc.int/EB/044/eb44rep.pdf</a>&gt;, Board clarified that the header of SSC methodologies stating .Project participants shall take into account the general guidance to the methodologies, information on additionality, abbreviations and general guidance on leakage provided at the same link mentioned above, which also implies attachment C of appendix B &lt;<a href="http://cdm.unfccc.int/methodologies/SSCmethodologies/history/c_leak_biomass/guid_biomass_v03.pdf">http://cdm.unfccc.int/methodologies/SSCmethodologies/history/c_leak_biomass/guid_biomass_v03.pdf</a>&gt; is to be applied in conjunction with a SSC methodology <i>mutatis mutandis</i>.)</p> <p>(See EB 50 report, paragraph 51 and its annex 30, .General guidelines for sampling and surveys for small scale CDM project activities., currently located at &lt;<a href="http://cdm.unfccc.int/EB/050/eb50_repan30.pdf">http://cdm.unfccc.int/EB/050/eb50_repan30.pdf</a>&gt; for sampling guidance. In accordance with the CDM EB 44 report, paragraph 50, currently located at &lt;<a href="http://cdm.unfccc.int/EB/044/eb44rep.pdf">http://cdm.unfccc.int/EB/044/eb44rep.pdf</a>&gt;, leakage from equipment transfer from within to outside the project boundary may</p>	Para.135	OK Tbv for (c)	CL-2





## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	<p>be excluded from consideration in SSC methodologies.)</p> <p>(c) The project activity is not a debundled component of a large-scale project, in accordance with the rules defined in appendix C of the simplified modalities and procedures for small-scale CDM project activities; (See EB 36, annex 27. Compendium of guidance on the debundling for SSC project activities., currently located at &lt;<a href="http://cdm.unfccc.int/EB/036/eb36_repan27.pdf">http://cdm.unfccc.int/EB/036/eb36_repan27.pdf</a>&gt;, and the EB 46 report, paragraph 60, currently located at &lt;<a href="http://cdm.unfccc.int/EB/046/eb46rep.pdf">http://cdm.unfccc.int/EB/046/eb46rep.pdf</a>&gt; for further clarification on determining the occurrence of debundling do not require the consideration of the start date of the proposed CDM project.)</p> <p>(d) Whether an assessment of the environmental impacts of the proposed SSC-PoA project activity is required by the host Party.</p>			
4.8	<p>In assessing the additionality of SSC-PoA CDM project activities, the DOE shall refer to the specific requirements on demonstration of additionality for small scale project activities in chapter V, section E, subsection 6740 and may refer to the .Non-binding best practice examples to demonstrate additionality for SSC project activities.</p> <p>(See decision 3/CMP.1, annex, appendix B, attachment A for small-scale CDM project activities.)</p> <p>(See EB35, annex 34, currently located at &lt; <a href="http://cdm.unfccc.int/EB/035/eb35_repan34.pdf">http://cdm.unfccc.int/EB/035/eb35_repan34.pdf</a>&gt;.)</p>	Para.136	DOE will follow	
4.9	If the DOE does not undertake a physical site inspection, it shall be appropriately justified.	Para.62 VVM	NA	
4.10	If the proposed SSC-PoA project activity involves the alteration of an existing installation or process, Does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	Para.63 VVM	NA	
<b>5.</b>	<b>Baseline and monitoring methodology</b>	Para.65-93 VVM	--	--
<b>(a)</b>	<b>General requirement</b>	Para.65-67 VVM	--	--
	The baseline and monitoring methodologies selected by the project participants shall comply with the methodologies previously approved by the CDM Executive Board.	Para.65 VVM	--	--
	To ensure that the project activity meets this general requirement, the followings shall be confirmed. (a) The selected methodology is applicable to the project activity; (b) The PP has correctly applied the selected methodology.	Para.66 VVM	--	--
	It shall also be ensured that the selected methodology is applicable to the project activity and has been correctly applied with respect to the followings: (a) Project boundary (b) Baseline identification (c) Algorithms and/or formulae used to determine emission reductions (d) Additionality (e) Monitoring methodology	Para.67 VVM	--	--


 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme			

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
(b)	<b>Applicability of the selected methodology to the project activity</b>	Para.68-77 VVM	--	--
	<b>&lt;Requirement to be validated&gt;</b> The selected baseline and monitoring methodology previously approved by the CDM Executive Board shall be validated to be applicable to the project activity, including that the used version is valid. Specific guidance provided by the CDM Executive Board in respect to any approved methodology shall be applied.	Para.68 VVM Para.69 VVM	--	--
5.1	<p>In section E.1 of the SSC-PoA-DD, refer to the UNFCCC CDM web site for the most recent list of the small-scale CDM project activity categories contained in Appendix B. The number and the version of the approved methodology that is used (e.g. "Version 17 of AMS-I.C.") shall be indicated.</p> <p>The methodology shall be ensured to be correctly quoted and applied by comparing it with the actual text of the applicable version of the methodology available on the UNFCCC CDM website.</p> <p>Referring to the UNFCCC CDM web site for the title and reference list as well as the details of approved baseline methodologies, the following contents shall be indicated in section E.1 of the PoA-DD.</p> <ul style="list-style-type: none"> <li>♦ the approved methodology</li> <li>♦ the version of the methodology that is used</li> <li>♦ any methodologies or tools which the approved methodology draws upon and their version</li> </ul>	SSC-PoA-DD Form  Para.70 VVM	OK	
5.2	1) The choice of methodology shall be justified and the project participants shall show that the project activity meets each of the applicability conditions of the approved methodology or any tool or other methodology component referred to therein in section E.2 of the SSC-PoA-DD.	Para.71 VVM	OK	
	2) The documentation referred to in the SSC-PoA-DD and its content shall be correctly quoted and interpreted in the DD.	ditto	OK	
5.3	<p>In section E.1 and E.2 of SSC-PoA-DD, the choice of project type and category (hereafter referred to as "project category") for the proposed project activity shall be justified. It shall be demonstrated that the project activity qualifies as a small-scale project activity and that it will remain under the limits of small-scale project activity types during every year of the crediting period:</p> <p>For Type I : Demonstrate that the capacity of the proposed project activity will not exceed 15 MW (or an appropriate equivalent),</p> <p>For Type II: Demonstrate that the annual energy savings on account of efficiency improvements will not exceed 60 GWh (or an appropriate equivalent) in any year of the crediting period,</p> <p>For Type III: Demonstrate that the estimated emission reductions of the project activity will not exceed 60 ktCO<sub>2</sub>e in any year of the crediting period.</p>	SSC-PoA-DD Form	OK	
5.	<b>Baseline and monitoring methodology</b>	Para.65-93 VVM	--	--
(c)	<b>Project boundary</b>	Para.77-79 VM	--	--





 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme			

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	<b>&lt;Requirement to be validated&gt;</b> The SSC-PoA-DD shall correctly describe the project boundary, including the physical delineation of the each CPA included within the project boundary for the purpose of calculating project and baseline emissions for the proposed SSC-PoA project activity.	Para.77 VVM	--	--
5.4 1)	In section B.3 of the SSC-PoA-DD, the project boundary of SSC-CPAs based on the guidance of the applicable project category shall be defined.  The delineation in the SSC-PoA-DD of the project boundary shall be correct and meet the requirements of the selected baseline methodology, which shall also be demonstrated by documented evidence and corroborated by a site visit.	Para.79 VVM	OK	
2)	All emission sources and GHGs required by the methodology shall be included within the project boundary for the purpose of calculating project emissions and baseline emissions.	Para.78 VVM	OK	
3)	If the methodology allows project participants to choose whether a source or gas is to be included within the project boundary, the project participants shall justify the choice by supporting documented evidences.	ditto	NA	
<b>5.</b>	<b>Baseline and monitoring methodology</b>	Para.65-93 VVM	--	--
<b>(d)</b>	<b>Baseline identification</b>	Para.81-88 VVM	--	--
	<b>&lt;Requirement to be validated&gt;</b> The SSC-PoA-DD shall identify the baseline for the proposed SSC-PoA project, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed PoA project.	Para.81 VVM	--	--
	Any procedure contained in the methodology to identify the most reasonable baseline scenario, shall be correctly applied. If the selected methodology requires use of tools (such as the "Tool for the demonstration and assessment of additionality" and the "Combined tool to identify the baseline scenario and demonstrate additionality") to establish the baseline scenario, the methodology on the application of these tools shall be confirmed. In such cases, the guidance in the methodology shall supersede the tool. The each step in the procedure described in the PoA-DD against the requirements of the methodology shall be checked.	Para.82 VVM	--	--
5.5	In section E.4 of the SSC-PoA-DD, the baseline for the proposed project activity with reference to the chosen project category shall be specified.  The key assumptions and rationale shall be explained and justified. It shall be required to illustrate in a transparent manner all data used to determine the baseline emissions (variables, parameters, data sources etc.) preferably in a tabular form	SSC-PDD Form	OK	
5.6	If the methodology requires several alternative scenarios to be considered in the identification of the most reasonable baseline scenario, it shall be determined whether all scenarios that are considered by the project participants and are supplementary to those required by the methodology, are reasonable in the context of the proposed CDM project activity and that no reasonable alternative scenario has been excluded.	Para.83 VVM	NA	

 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
<b>CDM Validation Protocol on Barefoot Power Lighting Programme</b>			

<b>TABLE-1 REQUIREMENTS CHECKLIST</b>			<b>OK/No/ NA/Tbv</b>	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
5.7	It shall be determined whether the baseline scenario identified is reasonable by validating the assumptions, calculations and rationales used, as described in the PoA-DD.	Para.84 VVM	OK	
	The documents and sources referred to in the PoA-DD shall be correctly quoted and interpreted. All data used to determine the baseline scenario shall be illustrated in a transparent manner, preferably in a table form.	ditto	Tbv	CL-7
5.8	All applicable PoA requirements shall be taken into account in the identification of the baseline scenario for the proposed PoA project activity, including “relevant national and/or sectoral policies and circumstances.”  (See paragraph 45 CDM M&P; Annex 3 to the report of the meeting of the CDM EB22 < <a href="http://cdm.unfccc.int/EB/022/eb22rep.pdf">http://cdm.unfccc.int/EB/022/eb22rep.pdf</a> >.)  (See decision 3/CMP.1, annex, paragraph 45, currently located at < <a href="http://cdmunfccc.int/Reference/COPMOP/08a01.pdf#page=6">http://cdmunfccc.int/Reference/COPMOP/08a01.pdf#page=6</a> >, and Latest “Clarifications on the consideration of national and/or sectoral policies and circumstances in baseline scenarios”)	Para.85 VVM  Para.45 CDM/M&P	OK	
5.9	The SSC-PoA-DD shall provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity.	Para.86 VVM	NA	
<b>5.</b>	<b>Baseline and monitoring methodology</b>	Para.65-93 VVM	--	--
<b>(e)</b>	<b>Algorithms and/or formulae used to determine emission reductions</b>	Para.89-93 VVM	--	--
	<b>&lt;Requirement to be validated&gt;</b> The steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions shall comply with the requirements of the selected baseline and monitoring methodology.	Para.89 VVM	--	--
5.10 1)	The equations and parameters in the SSC-PoA-DD shall be correctly applied by comparing them to those in the selected approved methodology.	Para.90 VVM	OK	
2)	If the methodology provides for selection between different options for equations or parameters, adequate justification shall be provided (based on the choice of the baseline scenario, context of the project activity and other evidence) and the correct equations and parameters shall be used, in accordance with the methodology selected.	ditto	OK	
5.11 1)	The justification shall be given in the SSC-PoA-DD for the choice of data and parameters used in the equations.	Para.91 VVM	Tbv	CL-7
2)	If data and parameters will not be monitored throughout the crediting period of the proposed CDM project activity but have already been determined and will remain fixed throughout the crediting period, it shall be demonstrated that all data sources and assumptions are appropriate and calculations are correct, applicable to the proposed CDM project activity and will result in a conservative estimate of the emission reductions.	ditto	OK	
3)	If data and parameters will be monitored on implementation and hence become available only after validation of the project activity, it shall be demonstrated that the estimates provided in the SSC-PoA-DD for these data and parameters are reasonable.	ditto	OK	


 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme			

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
5.12 1)	In section E.6.1 of the SSC-PoA-DD, Explain how the procedures, in the approved project category to calculate project emissions, baseline emissions, leakage emissions and emission reductions are applied to the proposed project activity. Clearly state which equations will be used in calculating emission reductions.	SSC-PDD Form	OK	
5.12 2)	Explain and justify all relevant methodological choices, including: • where the category provides different options to choose from (e.g. "combined margin" under AMS I.D); • where the category provides for different default values (e.g. values for MCF under AMS III.E)	SSC-PDD Form	OK	
5.13 1)	In section E.6.2 of the SSC-PoA-DD, This section shall include a compilation of the data and parameters NOT monitored but determined upfront so as to be available for validation. Data from monitoring (e.g. measurements after the implementation of the project activity) should not be included here but in the table in section E.7.1. This may includes data that is measured, if relevant with sample thereof, and data that is collected from sources such as official statistics, expert judgment, proprietary data, IPCC, commercial and scientific literature.	ditto	OK	
2)	Data that is calculated with equations provided in the approved category or default values specified in the category should not be included in the compilation.	ditto	NA	
3)	Provide for each parameter the chosen value or, where relevant, the qualitative information, using the table provided below. Particularly: -Provide the actual value applied. Where time series of data is used, where several measurements are undertaken or where surveys have been conducted, provide detailed information in Annex 3. -Explain and justify the choice for the source of data. Provide clear and transparent references or additional documentation in Annex 3. -Where values have been measured, include a description of the measurement methods and procedures that comply with the guidance provided under general guidance to indicative small scale methodologies found on the UNFCCC CDM website (e.g. which standards have been used), indicate the responsible person / entity having undertaken the measurement, the date of measurement(s) and the measurement results.	ditto	OK	
4)	More detailed information can be provided in Annex 3 of SSC-PoA-DD.	ditto	NA	
5.14	In section E.6.2 of the SSC-PoA-DD, Provide a transparent ex-ante calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage emissions expected during the crediting period, applying all relevant equations.  Document how each equation is applied, in a manner that enables the reader to reproduce the calculation. Where relevant, provide additional background information and or data in <b>Annex 3</b> , including relevant electronic files (i.e. spreadsheets).  If the project activity involves more than one component activity (e.g. one component activity for methane capture applying AMS III.D	ditto	Tbv	CAR-5


 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme			

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	together with another component for grid connected electricity generation applying AMS I.D) emission reduction calculations for each of the component shall be provided separately in a transparent manner.			
5.15	In section A.4.4. of the SSC-CPA-DD, Summarize the results of the ex-ante estimation of emission reductions for all years of the crediting period according to the SSC-CPA-DD Form. Each CPA-DD shall have a respective summary table for the results of ex-ante estimation of emission reductions of all crediting period. A table showing the aggregate emission reductions of the project activity shall also be included.	ditto	OK	
<b>6.</b>	<b>Additionality of a typical CPA of PoA</b>	Para.94-121 VVM	--	--
	<p><b>&lt;Requirement to be validated&gt;</b></p> <p>The SSC-PoA-DD shall describe how a proposed CDM project activity is additional.</p> <p>In accordance with decision 3/CMP.1,annex, paragraph 43 “A CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity” (see decision 5/CMP.1, annex paragraph 18). While specific elements of the assessment of additionality are discussed in further detail in paragraphs 98-121 in VVM, not all elements discussed below will be applicable to all CPAs included in PoA project activities.</p>	<p>Para.94 VVM</p> <p>Para.43 CDM/M&amp;P</p>	--	--
(a)	<p><b>Prior consideration of the clean development mechanism</b></p> <p>While specific elements of the assessment of additionality are discussed in further detail in Section 6.3 –6.15 below, not all elements discussed below will be applicable to all proposed CDM project activities</p>	Para.98-104 VVM	--	--
	<p><b>&lt;Requirement to be validated&gt;</b></p> <p>If the PoA start date is prior to the date of publication of the SSC-PoA-DD for stakeholder comments it shall be demonstrated that the CDM benefits were considered necessary in the decision to undertake the project as a proposed CDM project activity.</p>	Para.98 VVM	--	--
6.1	<p>The start date of the project activity, reported in the SSC-PoA-DD, shall be in accordance with the “Glossary of CDM terms”.  <a href="http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM_v03.pdf">http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM_v03.pdf</a>            Latest Glossary of CDM terms</p>	Para.99 VVM	NA	
	The starting date of a PoA is the date on which the implementation or construction or real action of a project activity begins. In section B.1 of the SSC-PoA-DD, the description should contain not only the date, but also a description of how this start date has been determined, and a description of the evidence available to support this start date.	ditto	NA	
	In particular, for project activities that require construction, retrofit or other modifications, the date of commissioning cannot be considered the project activity start date.	ditto	NA	
6.2	<p>It shall be identified whether it is a new project activity (a project activity with a start date on or after 02 August 2008) in accordance with the guidance from the CDM Executive Board, or an existing project activity (a project activity with a start date before 02 August 2008)</p> <p>(See Latest Guidances on the Demonstration and Assessment of Prior Consideration of the CDM)</p>	Para.100 VVM	NA	
6.3	For a new project activity, for which PoA-DD has not been published for global stakeholder consultation or a new methodology proposed to the CDM Executive Board before the project activity start date, the DOE shall ensure by means of confirmation from the UNFCCC	Para.101 VVM	NA	


 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme			

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	secretariat that PPs had informed the host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status. If such a notification has not been provided by the project participants within six months of the project activity start date, the DOE shall determine that the CDM was not seriously considered in the decision to implement the project activity. (See Latest .Prior consideration of the CDM form, currently located at < <a href="https://cdm.unfccc.int/EB/048/eb48_repan62.pdf">https://cdm.unfccc.int/EB/048/eb48_repan62.pdf</a> >, for the standardized form.			
6.4	For an existing project activity, for which the start date is prior to the date of publication of the PoA-DD for global stakeholder consultation, the project participant's prior consideration of the CDM shall be demonstrated by providing the following evidence (preferably official, legal and/or other corporate). In such cases the PP shall provide an implementation timeline of the project in the SSC-PoA-DD.	Para.102 VVM	NA	
1)				
(2)	Evidence to indicate awareness of the CDM prior to the project activity start date and evidence to indicate that the benefits of the CDM were a decisive factor in the decision to proceed with the project shall be provided.	ditto	NA	
3)	Evidence to support this would include, inter alia, minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a proposed CDM project activity.	ditto	NA	
4)	Reliable evidence that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation.	ditto	NA	
5)	Evidence to support this should include, inter alia, <ul style="list-style-type: none"> <li>contracts with consultants for CDM/DDs/methodology services,</li> <li>Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with multilateral financial institutions or carbon funds),</li> <li>Evidence of agreements or negotiations with a DOE for validation services,</li> <li>Submission of a new methodology to the CDM Executive Board,</li> <li>Publication in newspaper,</li> <li>Interviews with DNA,</li> <li>Earlier correspondence on the project with the DNA or the UNFCCC secretariat.</li> </ul>	ditto	NA	
<b>6.</b>	<b>Additionality of each CPA included in the PoA</b>	Para.94-121 VVM	--	--
<b>(b)</b>	<b>Identification of alternatives</b>	Para.105-107 VVM	--	--
	<b>&lt;Requirement to be validated&gt;</b> The SSC-PoA-DD shall identify credible alternatives to the project activity in order to determine the most realistic baseline scenario, unless the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario and no further analysis is required.	Para.105 VVM	--	--
6.5	The list of alternatives shall include as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity;	Para.106 VVM	OK	
1)				



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
2)	The list shall contains all plausible alternatives that are considered, on the basis of local and sectoral knowledge, to be viable means of supplying the outputs or services that are to be supplied by the proposed PoA project activity.	ditto		
3)	The alternatives shall comply with all applicable and enforced legislation.	ditto		
6.6	<p>In section E.5 of the SSC-PoA-DD, Demonstrate that the proposed project activity is additional as per options provided under attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities. National policies and circumstances relevant to the baseline of the proposed project activity shall be summarized here.</p> <p><b>Attachment A to Appendix B</b> Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:</p> <p>(a) Investment barrier: a financially more viable alternative to the project activity would have led to higher emissions; (b) Technological barrier: a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions; (c) Barrier due to prevailing practice: prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions; (d) Other barriers: without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.</p>	SSC-PDD Form	Tbv	CL-7
<b>6.</b>	<b>Additionality of each CPA included in the PoA</b>	Para.94- 121 VVM	--	--
<b>(c)</b>	<b>Investment analysis</b>	Para.108- 114 VVM	--	--
	<p><b>&lt;Requirement to be validated&gt;</b> If investment analysis has been used to demonstrate the additionality of the proposed PoA project, the PoA-DD shall provide evidence that the proposed PoA project would not be: The most economically or financially attractive alternative; or Economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs).</p>	Para.108 VVM	--	--
6.7	Project participants can show this through one of the following approaches, by demonstrating that:	Para.109 VVM	--	--
1)	Demonstrate that the proposed CDM project activity would produce no financial or economic benefits other than CDM-related income. Document the costs associated with the proposed CDM project activity and the alternatives identified and demonstrate that there is at least one alternative which is less costly than the proposed CDM project activity;	ditto	NA	
2)	The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative;	ditto	NA	
3)	Financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	ditto	Tbv	CL-7





## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
6.8	The DOE shall comply with the latest version of the “Guidance on the Assessment of Investment Analysis” as provided by the CDM Executive Board and with other relevant guidance including the latest guidelines on plant load factors “guidelines for the reporting and validation of plant load factors” (See EB 51 report, annex 58, currently located at < <a href="http://cdm.unfccc.int/Guidclarif/reg/reg-guid03.pdf">http://cdm.unfccc.int/Guidclarif/reg/reg-guid03.pdf</a> >)	Para.110 VVM  Annex 5 EB62	--	--
6.8 1)	Project participants should provide spreadsheet versions of all investment analysis. All formulas used in this analysis are readable and all relevant cells be viewable and unprotected.	Annex 5 EB62	NA	
2)	The evidences on which input values in the investment analysis are based shall be provided.	ditto	NA	
6.9 1)	All parameters and assumptions used in calculating the relevant financial indicator shall be validated thoroughly, and the accuracy and suitability of these parameters shall be verified using the available evidence and expertise in relevant accounting practices.	Para.111 VVM	NA	
2)	Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant.	Annex 5 EB62	NA	
3)	The cost of financing expenditures (i.e. loan repayments and interest) should not be included in the calculation of project IRR.	Ditto	NA	
4)	In the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM the investment analysis should reflect the economic decision making context at point of the decision to recommence the project. Therefore capital costs incurred prior to the revised project activity start date can be reflected as the recoverable value of the assets, which are limited to the potential reuse/resale of tangible assets.	ditto	NA	
5)	Only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude), and the results of this variation should be presented in the PoA-DD and be reproducible in the associated spreadsheets..  Where a variable which constitute less than 20% has a material impact on the analysis, this variable shall be included in the sensitivity analysis.  As a general point of departure variations in the sensitivity analysis should at least cover a range of +10% and –10%, unless this is not deemed appropriate in the context of the specific project circumstances.	ditto	NA	
6)	Such evidence for the evaluation of investment analysis as invoices, receipts, price indices, feasibility reports, public announcements, audited actual project cost and annual financial reports shall be provided upon request of the DOE.	ditto	NA	
6.10	The suitability of any benchmark applied in the investment analysis:	Para.112 VVM	--	–
1)	In cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR. Required/expected returns on equity are appropriate benchmarks for an equity IRR. Benchmarks supplied by relevant national authorities	Annex 5 EB62	NA	



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	are also appropriate if the DOE can validate that they are applicable to the project activity and the type of IRR calculation presented.			
2)	If the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services, a benchmark analysis is not appropriate and an investment comparison analysis shall be used. If the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate.	ditto	NA	
3)	The effectiveness of the applied benchmark shall be demonstrated with appropriate evidence.	ditto	NA	
4)	The PPs shall demonstrate that it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, showing previous investment decisions by themselves involved and demonstrating that the same benchmark has been applied, or if there are verifiable circumstances that have led to a change in the benchmark.	Para.112 VVM	NA	
6.11	The CDM Executive Board clarified that in cases where project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activities, it is required to ensure that: (See the EB 38 report, paragraph 54, currently located at < <a href="http://cdm.unfccc.int/EB/038/eb38rep.pdf">http://cdm.unfccc.int/EB/038/eb38rep.pdf</a> >.)	Para.113 VVM  Para.54 EB38		
1)	The period of time between the finalization of the FSR and the investment decision shall be sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed;	ditto	NA	
2)	The values used in the PoA-DD and associated annexes shall be fully consistent with the FSR, and where inconsistencies occur the appropriateness of the values shall be explained.	ditto	NA	
3)	It shall be confirmed that the input values from the FSR are valid and applicable at the time of the investment decision.	ditto	NA	
<b>6.</b>	<b>Additionality of each CPA included in the PoA</b>	Para.94- 121 VVM	--	--
(d)	<b>Barrier analysis (In case applied for Technological barrier, Barrier due to prevailing practice and Other barriers )</b> Barriers are issues in project implementation that could prevent a potential investor from pursuing the implementation of the proposed project activity. The identified barriers are only sufficient grounds for demonstration of additionality if they would prevent potential project proponents from carrying out the proposed project activity undertaken without being registered as a CDM project activity.	Para.115- 118 VVM	--	--
6.12	<b>&lt;Requirement to be validated&gt;</b> If barrier analysis has been used to demonstrate the additionality of the proposed PoA project, the PoA-DD shall demonstrate that the proposed PoA project faces barriers as below.	Para.115 VVM	--	--
1)	(a) Prevent the implementation of this type of proposed PoA project; (See Latest .Guidelines for objective demonstration and assessment of barriers	Para.115 VVM	NA	
2)	(b) Do not prevent the implementation of at least one of the alternatives.	Para.115 VVM	NA	




 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme			

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
6.13	Issues that have a clear direct impact on the financial returns of the project activity cannot be considered barriers and shall be assessed by investment analysis. This does not refer to either (a) Risk related barriers, for example risk of technical failure, that could have negative effects on financial performance, or (b) Barriers related to the unavailability of sources of finance for the project activity.	Para.116 VVM	NA	
6.14 1)	The available evidence shall be provided and/or interviews with relevant individuals (including members of industry associations, government officials or local experts if necessary) shall be arranged to demonstrate that the barriers listed in the PoA-DD exist.	Para.117 VVM	NA	
2)	The existence of barriers shall be substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics.	ditto	NA	
<b>7.</b>	<b>Monitoring plan</b>	Para.122- 124 VVM	--	--
	<b>&lt;Requirement to be validated&gt;</b> The PoA-DD shall include a monitoring plan. This monitoring plan shall be based on the approved monitoring methodology applied to the proposed CDM project activity.	Para.121 VVM	--	--
7.1 1)	<b><u>Compliance of the monitoring plan with the approved methodology</u></b> (i) The list of parameters required by the selected approved methodology shall be identified.	Para.122 VVM	OK	
2)	(ii) The monitoring plan shall contain all necessary parameters, and the means of monitoring described in the plan shall comply with the requirements of the methodology;	ditto	OK	
3)	In the section E.7 of the SSC-PoA-DD, The following two sections (E.7.1 and E.7.2) shall provide a detailed description of the monitoring plan, including an identification of the data to be monitored and the procedures that will be applied during monitoring.  Please note that data monitored and required for verification and issuance are to be kept for a minimum of two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.	SSC-PDD Form	Need correction	CL-10
4)	In section E.7.1 of the SSC-PoA-DD, Data that becomes available only after validation of the project activity (e.g. measurements after the implementation of the project activity) should be included here. Provide for each parameter the following information, using the table shown in the SSC-CDM Guidelines: <ul style="list-style-type: none"> <li>The source(s) of data that will be actually used for the proposed project activity (e.g. which exact national statistics, actual measurement etc.).</li> <li>Where the parameters are to be measured in accordance with the guidance of the approved project category or the general guidance to the indicative methodologies, specify the measurement methods and procedures including accepted industry standards or national or international standards which will be applied, which measurement equipment is used, how the measurement is undertaken, which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person / entity that should undertake the measurements and what is the measurement interval.</li> </ul>	ditto	OK	


 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme			

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	<ul style="list-style-type: none"> <li>A description of the QA/QC procedures (if any) that should be applied.</li> <li>Where relevant: any further comment.</li> </ul> Provide any relevant further background documentation in <b>Annex 4</b> .			
5)	In section E.7.2 of the SSC-PoA-DD, Please provide a detailed description of the monitoring plan. Describe the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects generated by the project activity. Clearly indicate the responsibilities for and institutional arrangements for data collection and archiving. The monitoring plan should reflect good monitoring practice appropriate to the type of project activity. Provide any relevant further background information in <b>Annex 4</b> .	ditto	Tbv	CL-8
6)	In section B.8 of the SSC-PoA-DD, Please provide date of completion of the application of the methodology to the project activity in <i>DD/MM/YYYY</i> . Please provide contact information of the persons(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity and indicate if the person/entity is also a project participant listed in <b>Annex 1</b> .	ditto	Need Correction	CL-14
7)	<b><u>Implementation of the plan</u></b> (i) The monitoring arrangements described in the monitoring plan shall be feasible within the project design;	Para.123 VVM	Tbv	CL-10
8)	(ii) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, shall be sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.	ditto	Tbv	CL-10
<b>8.</b>	<b>Sustainable development</b>	Para.125- 127 VVM	--	--
	<b>&lt;Requirement to be validated&gt;</b> CDM project activities shall assist Parties not included in Annex I to the Convention in achieving sustainable development.	Para.125 VVM	--	--
8.1	The letter of approval by the DNA of the host Party shall confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party.	Para.126 VVM	Tbv	CAR-1 CAR-2
<b>9.</b>	<b>Local stakeholder consultation</b>	Para.128- 130 VVM	--	--
	<b>&lt;Requirement to be validated&gt;</b> Local stakeholders shall be invited by the PPs to comment on the proposed CDM project activity prior to the publication of the DDs on the UNFCCC website. See glossary of CDM terms, currently located at <a href="http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM_v03.pdf">http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM_v03.pdf</a> , for definition of stakeholders.	Para.128 VVM  Glossary of CDM terms	--	--
9.1	Comments by local stakeholders that can reasonably be considered relevant for the proposed PoA project shall be invited in an open and transparent manner.	Para.129 VVM	Tbv	CL-12
1)	The summary of the comments received as provided in the PoA-DD shall be complete.	ditto	Tbv	CL-12
3)	The project participants shall demonstrate that they have taken due account of any comments received and shall describe/explain this process in the PoA-DD.	ditto	OK	
<b>10.</b>	<b>Environmental impacts</b>	Para.131- 133 VVM	--	


 JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme			

TABLE-1 REQUIREMENTS CHECKLIST			OK/No/ NA/Tbv	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	<b>&lt;Requirement to be validated&gt;</b> Project participants shall submit documentation to the DOE on the analysis of the environmental impacts of the project activity in accordance with paragraph 37(c) of the CDM modalities and procedures.	Para.131 VVM Para.37(c) CDM/M&P	--	
10.1	Project participants shall submit documentation to the DOE on the analysis of the environmental impacts of the project activity	Para.131 VVM	NA OK	
10.2	Project participants shall also provide all references to support documentation of a EIA if required by the host Party	Para.132 VVM	Tbv	CL-11
<b>11.</b>	<b>Additional Validation Requirement for a Programme of Activities (PoA)</b>	EB 55 Annex 38		
	<b>&lt;Requirement to be validated&gt;</b> In addition to the validation requirements arising out of the modalities and procedures for a clean development mechanism, the validation by the DOE shall address the following issues:	Para.165 VVM	--	--
1)	Additionality of the PoA (3.6 (e) above);	EB 55 Annex 38	DOE will follow	
2)	Eligibility criteria for inclusion of a proposed CPA in the registered PoA, including criteria to be used for demonstration of additionality of a CPA;	ditto	DOE will follow	
3)	Operational and management arrangements established by the coordinating/managing entity for the implementation of the PoA inter alia the issues identified in paragraph 3.6 (i) above;	ditto	DOE will follow	
4)	Consistency between CDM-POA-DD and the PoA generic CDM-CPA-DD to be used for inclusion of a CPA in the registered PoA;	ditto	DOE will follow	
5)	In cases where more than one approved methodology will be applied to each CPA, confirmation that the application of multiple methodologies has been approved in accordance with .Procedures for approval of the application of multiple methodologies to a programme of activities.	ditto	NA	



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
<b>CAR Corrective Action Requests</b>				
<b>CAR-1</b>	<b>&lt;LoA&gt;</b> Letters of approval (LoA) by the DNAs of is to be provided.	1.1, 2.1 2.2, 2.7, 2.8, 8.1	Letter of Approval (LoA) has been requested from the both the Kenyan and Ugandan DNA. A letter requesting the Letter of Approval from NEMA (The DNA) will be provided.	BFP (CME) and CAL(CDM consultant) expected the LoAs would be issued around January to March.
			Due to the delay of LoA issuance by Ugandan DNA, the project boundary is changed to only within Kenya. The addition of Uganda to the project boundary would be made by a post registration	JCI accepted the change, and requested to revise PoA-DD to cover this change
			A copy of LoA (Kenya) has been submitted.	LoA (Kenya) was confirmed to be adequate.OK CAR-1 was closed out
<b>CAR-2</b>	<b>&lt;LoA&gt;</b> Letters of approval (LoA) by the DNAs of Annex-I Country is to be provided. The project participant of Annex-I Country is to be noted at PoA-DD A.3.	1.1, 2.1 2.2, 2.7, 2.8, 8.1	The project activity is developed as a unilateral project. There are no project participants from Annex I Countries involved in the project activity.	JCI noted such condition would be described in its validation report, and has raised FAR-1 to CME CAR-2 was closed out
<b>CAR-3</b>	<b>&lt;MoC&gt;</b> Modalities of Communication (MoC) by the PPs are to be provided according to the Guidelines on Request for Registration.	2.9	Will be provided during the site visit.	MoC shall be provided in before request for registration.
			MoC draft has been added to Reference list	OK CAR-3 was closed out
<b>CAR-4</b>	An affirmation letter commenting that the ODA funding is not being diverted to the implementation of	4.5 3.6	A letter has been requested from the Annex I Party but not yet received.	The letter shall be provided before request for registration.



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
	the proposed PoA, as specified at the Procedures for Registration of PoA (EB55 Ann38)	(14	An affirmation letter commenting that the ODA funding is not being diverted to the implementation of the proposed project has been provided in the Barefoot Power reference list as reference 65.	The submitted affirmation letter was confirmed to be adequate. OK CAR-4 was closed out
CAR-5	<b>&lt;Excel spread sheet for the calculation by PP&gt;</b> (1) Excel spread sheet of estimation of emission reductions of CO2 for CPA-DD SSK-KE-01 has been submitted to DOE, and its content will be reviewed and clarified during the on-site visit	5.14	To be discussed during site visit	Excel spreadsheet for the calculation of the estimated emission reductions for the first CPA in Kenya has been submitted to the DOE, and its content was reviewed and clarified during the on-site visit.



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			Because the internal assessment by BFP has indicated that some of the project lamps do not meet the requirements for a 7 year crediting life, the emission reductions had to be adjusted. The expected emission reductions were therefore also corrected in section A.2, A.4.4, B.5.2 and B.5.3 of version 2 of the CPA-DDs for both Kenya and Uganda. The project proponent has also provided further clarifications in version 2 of the emission reduction calculation spreadsheet in accordance with all the relevant guidance and formulas in AMS III.AR, version 01.	Emission reductions sheet for both Kenya and Uganda were requested further modifications according to the mail correspondence dated January 19, for example as below: <ol style="list-style-type: none"><li>1) Delete description on the header (correct project name) in Kenya ER sheet</li><li>2) Power Pack 5W Bright is under Option 2 ? in ERs for both Kenya and Uganda ?</li><li>3) At the last line of page 25 at B.5.2. of CPA-SSK-ver02., ERY description shall be corrected for the first year of the verification period.</li></ol>



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>Emission reductions sheet for both Kenya and Uganda were modified as below:</p> <p>1) The description on the header (other project name) was removed in version 02 of the Kenya and Uganda ER sheet.</p> <p>2) The Barefoot Power project lamp Power Pack 5W Bright key specifications were revised in the version 03 of CPA-DD SSK-KE-01 and CPA-DD BFPU-UG-01 and falls under Option 2 in the version 01 of AMS III.AR. The autonomous time or run time of the Powa Pack 5 W Bright lamp has been corrected to 8 hours in the version 03 of the emission reductions spread sheet. Changes were consequently made to version 03 of CPA-DD CPA-SSK-KE-01 and version 03 of CPA-DD CPA-BFPU-UG-01 and sections A.2, A.4.4 and B.5.3 reflect the new values of annual and total emission reductions obtained.</p> <p>3) Changes have been made to the ERy description in the last line on page 25 of the CPA-SSK-ver03 section B.5.2. on page 25. to give the correct description as “7,944 tCO<sub>2</sub> for the first year of the verification period”</p>	<p>The Emission reduction sheet were adequately revised.</p> <p>OK</p> <p>But,because the Answer to the query SSC_609 was reported by SSC WG 36, the note about “Lag_Time value” shall be added to comply with the conditions specified by SSC WG 36.</p>
			<p>The conditions “Lag_Time value” has been added to comply with SSC WG 36 to PoA-DD section E.6.2 (version 05)</p>	<p>OK</p> <p>The conditions were confirmed with the final response of SSC WG 36.</p> <p>CAR-5 was closed out</p>



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
<b>CAR-6</b>	<p><b>&lt;Applicability of adopted Standards and Guidelines etc&gt;</b></p> <p>The listed Guidelines for demonstration of additionality at PoA-DD A.4.3 shall be corrected to the latest versions, and such corrections shall be made at other parts of PoA-DD and CPA-DDs. e.g.: Attachment A of Appendix B (version 08), Guidelines for Demonstrating additionality of Microscale Project Activities (version 03).</p> <p>The two new Standards for PoA (EB63 Annex 02 and Annex 03) shall be applied to PoA-DD and CPA-DDs</p>	3.6(6)	<p>Changes have been made in version 2 of the Po-ADD in section A.4.3, section E.5.1 and E.5.2 to correct the versions of the various guidelines in relation to the demonstration of additionality.</p> <p>Similarly, changes were made to version 02 of the general CPA-DD and the specific CPA-DD for BFP SSK-KEN-01 in section B.3</p> <p>The two new Standards for PoAs (EB63, Annex 2 and Annex 3) were applied to the PoA-DD and CPA-DDs in the following way:</p> <ul style="list-style-type: none"> <li>- Reference is made in section A.4.3 of version 02 of the PoA-DD to Standard for the demonstration of additionality of GHG emission reductions achieved by a Programme of Activities (version 01.0, EB 63, Annex 2).</li> <li>- The eligibility for inclusion of a CPA under the PoA have been reformulated in section A.4.2.2 of version 02 of the PoA-DD following the Standard for the development of eligibility criteria for the inclusion of a project activity as a CPA under the PoA (version 01.0, EB 63, Annex 3). A management system for the inclusion of CPAs has also been included in</li> </ul>	<p>The revised versions of the PoA-DD, the generic CPADD, CPA-01 and CPA-02 shall be provided by considering the new two Standards (EB 65 Ann.02. and Ann.03), and AMS-III.A.R. Ver.02.(EB65)</p>





## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>section A.4.2.2 of version 02 of the PoA-DD.</p> <ul style="list-style-type: none"> <li>- As per the guidance in the PoA-DD form, the criteria for demonstrating additionality of individual CPAs has been removed from section A.4.2.2.</li> <li>- Changes have been made to the eligibility criteria in section B.2 of of version 02 of the generic CPADD and the specific CPA-DD for Kenya.</li> </ul>	
			<p>Changes have been made in version 2 of the PoA-DD in section A.4.3, section E.5.1 and E.5.2 to correct the versions of the various guidelines in relation to the demonstration of additionality.</p> <p>Similarly, changes were made to version 02 of the general CPA-DD and the specific CPA-DD for BFP SSK-KEN-01 and BFP BFP-UG-01 in section B.3</p> <p>It should be noted that since the resolution of Corrective Actions and Clarification Requests was received, the PoA Standards, which were adopted at EB 63, were consolidated and replaced by the <i>Standard for demonstration of additionality, development eligibility criteria and application of multiple methodologies for programme of activities</i> (EB 65, Annex 3). The corrections reflect the latest version of the Standard.</p> <p>The new Standard for PoAs (version 01.1, EB 65,</p>	<p>The revised versions of the PoA-DD, the generic CPADD, CPA-01 and CPA-02 was provided by considering the new two Standards (EB 65 Ann.02. and Ann.03). But the project participant determined to apply AMS-III.A.R. Ver.01 due to technical specification barrier of the developed project lamps, which JCI considered as acceptable.</p> <p>OK CAR-6 was closed out</p>



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>Annex 3) was applied to the PoA-DD and CPA-DDs in the following way:</p> <ul style="list-style-type: none"><li>- Reference is made in section A.4.3 of version 02 of the PoA-DD to the <i>Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities</i> (version 01.0, EB 65, Annex 3).</li><li>- The eligibility for inclusion of a CPA under the PoA have been reformulated in section A.4.2.2 of version 02 of the PoA-DD following the <i>Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities</i> (version 01.0, EB 65, Annex 3). A management system for the inclusion of CPAs has also been included in section A.4.2.2 of version 02 of the PoA-DD.</li><li>- As per the guidance in the PoA-DD Form, the criteria for demonstrating additionality of individual CPAs has been removed from section A.4.2.2 and are described in section E.5.</li><li>- Changes have been made to the eligibility criteria in section B.2 of version 02 of the generic CPA-DD and the specific CPA-DD for Kenya and Uganda to reflect the requirements under the <i>Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities</i>.</li></ul> <p>The project proponent has also made changes to</p>	



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>reflect the new guidelines in the <i>Standard for sampling and surveys for CDM project activities and programme of activities</i> (version 02.0, EB 65, Annex 2) in the following way:</p> <ul style="list-style-type: none"> <li>- Change have been made in section A.4.4.2 of version 02 of the PoA-DD</li> <li>- Changes have been made in section E.7.2 of version 02 of the PoA-DD</li> <li>- Changes were made to section E.6.2 of version 02 of the PoA-DD in line with para 16 of the <i>Standard for sampling and surveys for CDM project activities and programme of activities</i> (version 02.0, EB 65, Annex 2)</li> <li>- Changes were made to section B.5.2 of version 02 of the general CPA-DD and version 02 of the specific CPA-DDs for Kenya and Uganda in line with para 16 of the <i>Standard for sampling and surveys for CDM project activities and programme of activities</i> (version 02.0, EB 65, Annex 2)</li> <li>- Changes have been made to section B.6.1 of version 02 of the general CPA-DD and version 02 of the specific CPA-DDs for Kenya and Uganda</li> </ul>	
<b>CL Clarification Requests</b>				
<b>CL-1</b>	<p>&lt;Confirmation of Boundary&gt;</p> <p>1) The project participant is requested to explain how additional CPAs are scheduled in the PoA. For example, if additional CPAs are scheduled in Kenya, how the boundary of CPA-DD SSK KEN-</p>	2.4(1)	1. Like SSK KEN-01, subsequent CPAs will also be implemented throughout the country. In that sense, the boundary of CPAs will overlap. However, project lamps will be marked with clear unique	1.The unique identification procedure by labelling with different CPAs on to end-user's lamp was assessed as complying with Eligibility



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
	01 is defined against another CPA in Kenya. 2) The coordinates values of Kenya and Uganda shall be correctly noted at PoA-DD A.4.1. 3) The name and address details described at CPA-DD SSK KEN-01 A.4.1.2. shall be put at A.3.		identification linking them to their specific CPAs. The unique identification on the project lamps will differentiate project lamps from different CPAs. 2. The coordinates values of Kenya and Uganda have been corrected accordingly in the PoA-DD. See section A.4.1 of version 2 of the PoA DD. 3. The names and address details described in section A4.1.2 have been put in section A.3 of version 2 of the CPA-DD for Kenya.	Criteria. OK. 2. In addition to the response to be made by version 2 of the PoA-DD, the Country map and District name table with numbering of each District as illustrated at CPA-DD Uganda A.4.1.2 shall also be made for CPA-DD Kenya. This is for tracking the District of end-users when monitoring by Multistage Sampling. But the Country map shall be within one page. 3. The version 2 is to be provided.
			2. The District name table added to Annex-5 of CPA-DD-Kenya version 2. 3. CPA-DD-Uganda version 2 has been provided	2. and 3. OK 4. But the project boundary shall be revised due to the change of the host country.
			4. The PoA-DD version 5 has been issued.	The revision was adequate. OK CL-1 was closed out
CL-2	<Confirmation of non de-bundled> The project participant is requested to explain the conditions for non de-bundled are cleared	4.7(c)	In line with paragraph 10 of the Guidelines on Assessment of Debundling for SSC Project Activities (EB 54, Annex 13, version 03), the CPAs in the PoA are exempted from performing a de-bundling check because the emission reductions achieved by each independent subsystem (i.e. each LED based	Confirmed with the Guidelines. OK CL-2 was closed out



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			lighting system) is not larger than 1% of the threshold defined by the methodology used: the threshold for AMS III.AR is 60,000 tCO <sub>2</sub> /year and 1% of 60,000 tCO <sub>2</sub> /year equals 600 tCO <sub>2</sub> /year. As per AMS III.AR version 01, the default emission factor per project lamp equals 0.08 tCO <sub>2</sub> /year, which is far below the threshold of 600 tCO <sub>2</sub> /year.	
CL-3	The project start date shall be correctly described at CPA-DD SSK-KE-01 A.4.2.1. to the date of PoA and CPA-DDs were published for GSC. Accordingly, the comment at A.4.2.1. shall be revised according to the Guidelines.	3.7(3) (4)	The project start date description has been revised to correctly describe it as “the earliest date at which either the implementation, construction or real action of a programme activity begins. The starting date of the CPA cannot be prior to the commencement of validation of the programme of activities” according to the Glossary of CDM Terms (version 05). The comment in CPA-DD SSK-KE-01 Section A.4.2.1. has been revised according to the guidelines to read “In line with this definition, the start date of the proposed CPA will be the date on which the CPA entity distributes the first project lamps under the CPA in Kenya and will only be after the date the PoA DD and CPA DD is published for global stakeholder consultation”.	The corrections were made at version 2.  The evidence of the first sales of the project lamps of each CPA shall be provided.
			The evidence of first sale of Project Lamps has been provided in the Barefoot Power	The invoice evidences were



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			reference 63 for the Uganda CPA and Barefoot Power reference 64 for the Kenya CPA. The start dates were also changed in sections A.4.2.1 and B.2 version 03 of the CPAs for Kenya and Uganda and in the emission reduction calculation spreadsheets, cell B8.	confirmed, and the revisions of the project start date were also confirmed to be adequate.  OK CL-3 was closed out
CL-4	The key technical specifications shall be additionally described as requested by the methodology (AMS-III.AR. para.6 ) at PoA-DD A.4.2.1.	4.2	The key technical specifications as requested by the methodology (AMS III.AR. paragraph 6) will be described in the CPA-DDs because different CPAs might distribute project lamps that have different technical specifications. The technical specifications for the first CPAs in Kenya and Uganda have been described section A.2. A requirement has been added in section A.4.2.1 of the PoA-DD for the technical specifications as required by the methodology to be described by each CPA in their specific CPA DDs.	JCI considered the response was reasonable. But the technical specifications shall be revised according to AMS III AR version 2 with completely filled up in Tables at each CPA-DD



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>Because the project is going to distribute new types of project lamps during the lifetime of the PoA, it is not possible to already provide the key technical specifications of all the project lamps and fix them at the PoA level. Instead, the key technical specifications as requested by the methodology (AMS III.AR. paragraph 6) will be described in the CPA-DDs because different CPAs might distribute project lamps that have different technical specifications. The technical specifications for the first CPAs in Kenya and Uganda have been described in section A.2 of the respective CPA-DDs.</p> <p>A requirement has been added in section A.4.2.1 of the PoA-DD for the technical specifications as required by the methodology to be described by each CPA in their specific CPA DDs.</p> <p>In case new project lamps are being distributed which have not yet been described in a CPA-DD, the programme will start a new CPA and include the necessary technical descriptions in a new CPA-DD. This was further clarified in section A.4.2.1 of version 02 of the PoA-DD</p>	<p>The adoption of AMS-III.A.R. Ver.01 due to technical specification barrier of the developed project lamps, was considered as acceptable. OK</p> <p>But the below points are to be clarified :</p> <ol style="list-style-type: none"><li>1) Some data of the technical specifications at A.2.Tables of both CPA-SSK and CPA-BFPU shall be corrected</li><li>2) The description of illumination intensity shall be modified for both SSK and BFPU to show some of the Option 2 lamp units are complying with the requirement by Methodology Para.11.(c) (i) , because a single lamp of such units is less than 20lux.</li></ol>



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>1. The technical specifications of the project lamp PowaPack 5W Bright (1+1 lamps) were revised in version 03 of CPA-DD SSK-KE-01 and version 03 of CPA-DD BFPU-UG-01. The autonomous time was changed to 8 hours in section A.2 in version 03 of CPA-DD SSK-KE-01 and section A.2 in version 03 of CPA-DD BFPU-UG-01. The same correction was made in version 03 of the emission reduction spreadsheets for Uganda and Kenya in cell H48 and H49 of 'Product Evaluation' worksheet. Corrections were also made to the solar fraction values in section A.2 of the CPA-DD SSK-KE-01 for two project lamps, PowaPack Village Kit 10W (2+2+1 lamps) and PowaPack Village Kit 15W (2+4+1 lamps). The values were changed from fraction to percentage values.</p> <p>2. The Methodology AMS III.AR (Version 01) paragraph 11.(c)(i) requires "<i>An illumination level of 20lx for task and portable lights and 4lx@1m for ambient lights</i>". All the Barefoot Power lamps that fall under option 2 comply with this requirement. The Firefly Mobile Ultra Torch is a task light with an illumination level of 29 lux that complies with the 20 lux requirement in the methodology for task lights. The rest of the project lamps that fall under option 2 are ambient lights and they meet the requirement of the given technical specification of illumination level of 4 lux as listed in the DDs.</p>	<p>The different application (task or ambient ) of each type of the project lamps were confirmed, and their specifications were confirmed to comply with the methodology.</p> <p>OK CL-4 was closed out</p>
CL-5	The project participant shall clarify how rated average life of the project LED lamp as 10.000 hrs was certified by a third party with provision of certificates.	4.2	The selection of a certified third party testing organization is under way. Testing results are, therefore, not available <i>ex ante</i> but will be made	The quality certificates of the project lamps are satisfactory of the criteria.





## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			available for verification. A report with results from an internal test carried out by Barefoot Power was provided as Reference 44. The report shows that the light output of the LED does not decrease by more than 10% after 2,000 hours and 30% after 10,000 hours. The reference was stamped by Barefoot Power quality control department	The provision of the third party's certification shall be provided before verification, which is noted at FAR-2. OK CL-5 was closed out
CL-6	As a verifiable information on "financial barrier" stated at PoA-DD A.4.3., the project participant is requested to explain the financial aspect of "Barefoot Power Lighting Programme" with respect to, a) Capital amount (Fund plus own) b) Estimated annual profit and loss	3.6(5)	Barefoot Power faced financial barriers with respect to capital amount (fund plus its own) in the development of Barefoot Power's next generation, generation 2.5, high-quality, solar-based LED systems that required additional capital investments. Investments were also needed for shipping the products to their end users in Kenya and Uganda. In this context, additional revenue from carbon credits was critical in creating the necessary investor confidence and in allowing a business model that can offer both high quality products at an affordable price and proper after sale services. Barefoot Power reference 10 gives an extract of a loan agreement with a potential investor that considered CERs critical before signing the loan agreement. Estimated annual profit and loss and the financial model will be discussed during the on-site visit	The provided extract from the loan agreement was considered as an external evidence. In order to demonstrate the financial barrier complying with EB50 Ann.13. Para.5, please additionally provide information as listed by the separate letter, 1. The loan amount, and its starting year and date of the Reference 10. 2 . How much does CME expect on the improvement of ROE (return on equity) by gaining this loan and by CER income compared to ROE without such income.



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			Additional information was provided by the project proponent Barefoot Power Limited to the validation team JCI in a separate email dated March 05, 2012 to demonstrate the financial barrier complying with EB 50 Annex 13 Paragraph 5.	The positioning of the special loan under the condition of gaining CERs was confirmed to be critical for implementation of the PoA project. OK CL-6 was closed out
CL-7	<p>&lt;Confirmation of additionality demonstration at CPA-DD SSK-KE-01 B.3.&gt;</p> <ol style="list-style-type: none"> <li>1) The project participant is requested to provide the base line information in Kenya, including price of kerosene, price of kerosene lamps.</li> <li>2) The PDF copy of the relevant references such as 16,17,18 and 27 in the foot note.</li> <li>3) The project participant is requested to provide verifiable information about “access-to-finance barriers”, showing how the proposed project could overcome the barriers through <ol style="list-style-type: none"> <li>a) Price comparison of LED lamps between the project and other LED lamps available in the market of Kenya</li> <li>b) Quality comparison of LED lamps between the project and others available in Kenya</li> <li>c) How the project plan to improve its performance and quality of LED product</li> </ol> </li> </ol>	<p>5.7 5.11 6.6 6.7(3)</p>	<ol style="list-style-type: none"> <li>1. Additional baseline information in Kenya including price of kerosene and kerosene lamps has been added in CPA-DD SSK-KE-01 section B.3. and in annex 3.</li> <li>2. The PDF copies of relevant references in the footnotes are available and will be provided to JCI. See Barefoot Power reference 2,3,4,5,6 and 7.</li> <li>3. Verifiable information about access to finance barrier is shown below <ol style="list-style-type: none"> <li>a. Cheap and low quality LED lighting products are currently widely available in the Kenyan market. According to a study carried out by Johnstone <i>et al.</i> in Kenya most of the off-grid lighting products are low cost torches (89.6%) (referenced in BFP Reference 47). The retail price of most products was very low (&lt;400 KES) (BFP Reference 47). The mean retail price</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. The market information was discussed during the on-site visit. OK</li> <li>2. Provided. OK</li> <li>3. The background information was discussed during the on-site visit. OK</li> </ol> <p>CL-7 was closed out</p>



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>per sample was 2.94 USD, with sample prices ranging from 0.64 to 5.14 USD at an exchange rate of 78 KES per USD (BFP Reference 48). The prices for BFP products range from USD 22.10-443.50 for the different BFP products (BFP Reference 49). It should be noted that most of the products in the market are torches and BFP's products focus mostly on task and ambient lights. Therefore, one cannot just compare the prices. However, BFP does have one torch product in its portfolio (the Firefly Mobile Ultra Torch) which retails for 47.90 USD (BFP Reference 49.). The reason for the higher price is the better quality that is provided by BFP (see next section). As explained in section A.4.3. of the PoA-DD, the challenge for BFP is to make the product as affordable as possible without compromising on quality. Therefore, the project needs the revenue from the carbon credits.</p> <p>b. Standardized approaches for comparing quality of different LED products are being developed but very little information is currently available to compare the different products that are available in the market. Nevertheless, the</p>	



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>superior quality of BFP products as compared to other products is clearly demonstrated by the following three arguments: (1) In 2010, BFP won 3 of the 4 Outstanding Product Awards in the Lighting Africa Competition. The awards were given for Top Performance, Best Value and Best Ambient/Room Lighting. In the fourth category (Task Lighting) BFP received the second place (BFP Reference 51, p. 19) (2) Lab results and field tests show that the quality of most low cost torches is very low. End users report rapid failure due to LED quality, water leakage, breakage, battery failure and others (BFP Reference 50). This was confirmed by laboratory tests carried out in 2010 (BFP Reference 48). This last study concluded that “LED flashlights perform poorly in several key areas including run time, battery capacity, durability, lumen maintenance, and battery charge control” and “Under normal use scenarios, most of the products we tested are limited to two months of useful life before they have severe performance degradation or a total failure”. (3) Two reports have been identified discussing quality of different</p>	



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>types of solar lights and LED products. The first report is an assessment from GTZ in 2009 (BFP Reference 41). The study tested a number of different solar light products (both CFL and LED). Only one of the seven products assessed had a luminous efficacy (lumen/Watt) higher than 40. The second study carried out by the Lumina Project tested more than 10 different products and the luminous efficacy ranged from 8-53.1 lumen/Watt (BFP Reference 52). In comparison, the luminous efficacy of BFP products ranges between 56.3 and 110 lumen/Watt. Together, the above arguments clearly show that BFP products are of a higher quality than other products that are widely available in the market. Because of the better quality, BFP product costs are also higher and therefore, the project needs CER revenues.</p> <p>c. A summary of the Barefoot Power product specifications was provided during the on-site visit (BFP Reference 33). The summary shows an improved quality of the Barefoot Power Lighting products in columns AG-AJ on all accounts.</p>	



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

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	The project participant is requested to explain about product supply plan and management scheme in PoA and in CPA SSK-KE-01 during the on-site assessment	7.1	The product supply plan and management scheme in the PoA and in the CPA SSK-KE-01 will be explained during the on-site assessment in Kenya.	Further substantiation about CME role shall be added in PoA-DD as listed below to comply with the Standard (EB65 Para.17) 1. Para.17 (a) : Personnel and the relevant organization 2. Para.17 (f) : Measures for improvement, for example, an Internal Auditing System, or whatever you recommend. 3. At PoA-DD A.2. 1, add according to Para.17 (b) and (c)
			Further changes were also made to section A.4.2.2 of version 02 of the PoA-DD to include the CME management requirements as per para 17 of <i>Standard for demonstration additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities</i> (EB 65, Annex 3, version 01.0).	It was adequately revised. OK CL-8 was closed out
CL-9	The project participant is requested to explain about its plan and scheme about CPA-DD in Uganda	2.5(1)	The project participant submitted the CPA-DD for Uganda on 1 November 2011.	The provision of CPA-DD Uganda Version02 was requested.
			CPA-DD Uganda version2 has been provided <u>Response to the issues 1) to 4)</u> 1)The district name table in section A.4.1.2 of version 02 of CPA-DD BFPU-UG-01 has been moved to annex 5 in version 03 of the CPA-DD for Uganda and the section A.4.1.2 is within one page in version 03 of the CPA-	1)At A.4.1.2., the map is OK but district name table is to be moved to Annex, in order to make the section within one page. 2)For technical specifications, same comment as CL-4



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>DD BFPU-UG-01.</p> <p>2) The technical specifications of the project lamp Powapack 5W Bright (1+1 lamps) were revised in version 03 of CPA-DD SSK-KE-01 and version 03 of CPA-DD BFPU-UG-01. The autonomous time was changed to 8 hours in section A.2 in version 03 of CPA-DD SSK-KE-01 and section A.2 in version 03 of CPA-DD BFPU-UG-01. The same correction was made in version 03 of the emission reduction spreadsheets for Uganda and Kenya in cell H48 and H49 of 'Product Evaluation' worksheet.</p> <p>The Methodology AMS III.AR (Version 01) paragraph 11.(c)(i) requires "<i>An illumination level of 20lx for task and portable lights and 4lx@1m for ambient lights</i>". All the Barefoot Power lamps that fall under option 2 comply with this requirement. The Firefly Mobile Ultra Torch is a task light with an illumination level of 29 lux that complies with the requirement in version 01 of the methodology AMS III.AR. The rest of the project lamps that fall under option 2 are ambient lights and they meet the given technical specification of illumination level of 4 lux as listed in the DDs.</p>	<p>3) The description on ERY at the last line of B.5.2. page 25, shall be corrected for the first year of the verification period.</p> <p>4) The value of BEy for ERY calculation in page 25 shall be corrected.</p>



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>3)The description on ERy at the last line of B.5.2. page 25 has been changed to “7,215 tCO2 for the first year of the verification period” in version 3 of the CPA-DD for Uganda, BFPU-UG-01 and additionally for the generic CPA-DD and CPA-DD SSK-KE-01.</p> <p>4)The value of BEy for ERy calculation in page 25 of version 02 CPA-DD BFPU-UG-01 has been corrected from 0.896 to 0.0896 in version 03 of the CPA-DD BFPU-UG-01.</p>	<p>The clarification points were confirmed to be adequately revised.</p> <p>OK CL-9 was closed out</p>





## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

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-10	<p>&lt;Monitoring &gt;</p> <ol style="list-style-type: none"> <li>1) The project participant is requested to explain the survey principles and sampling method by taking practical examples in some district in Kenya during the onsite assessment</li> <li>2) The project participant is requested to provide relevant information or own survey data on the parameters which were different from default values at CPA-DD SSK-KE-01 B.5.1., including reference 19 in the foot note</li> <li>3) The project participant is requested to provide the planned monitoring manual and its management plan of CPA-DD SSK-KE-01.</li> <li>4) The project participant is requested to explain about incentives scheme for consumers to participate in the monitoring process</li> <li>5) Additional description of record keeping for two years after the end of credit shall be made in CPA-DD SSK-KE-01.</li> </ol>	7.1 3.5(11)	<ol style="list-style-type: none"> <li>1. The survey principles and sampling method will be explained during the onsite assessment by taking practical examples in a district in Kenya.</li> <li>2. The only parameter that is different from the default values provided in AMS III.AR (version 01) is the utilization rate which is set at 5 hours per day. Supporting evidence is provided in BFP Reference 2, p. 56. A planned monitoring manual and its management plan of the CPA-DD SSK-KE-01 will be provided during the onsite assessment.</li> <li>3. To be provided during the on-site visit.</li> <li>4. A note was made in section B.6.1 of version 02 of the CPA-DD for Kenya stating that records will be kept until 2 years after the end of the last crediting period.</li> </ol>	<ol style="list-style-type: none"> <li>1. It was requested to follow CL-1 for implementation of random selection when Multistage Sampling. It was also requested during the on-site visit that the name of published Random number table shall be described in the monitoring manual.</li> <li>2. Confirmed OK</li> <li>3. A draft Monitoring manual was reviewed, and additional request was raised during the on-site visit, which is similar to those of CL-8</li> <li>4. It was explained</li> <li>5. The version 2 shall be provided</li> <li>6. Further request according to the Sampling Standard (EB65 Appendix 4 &amp; 5) are:               <ol style="list-style-type: none"> <li>6-1. The training record of Surveyors shall be filed</li> <li>6-2. The random sampling result including non-selections shall be recorded and filed</li> <li>6-3. All visiting records to end-users by Surveyors including non-samplings shall be</li> </ol> </li> </ol>



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
				recorded and filed 6-4 The Questionnaire Template at Annex-4 of CPA shall be modified by adding Surveyor's signature.
			<p>1. The project proponent included a list of districts and district codes in Annex 5 of version 02 of the specific CPA-DD for Kenya. Further clarification was also provided in section E.7.2 of version 02 of the PoA-DD and section B.6.1 of version 02 of the CPA-DDs for Kenya and Uganda and the general CPA-DD that a random number table or random number generator will be used to randomly select districts and end users.</p> <p>3 The monitoring manual and management plan for CPA-DD SSK-KE-01 was provided during the on site visit (BFP Reference 53). The project proponent also made further changes to the record keeping system in section A.4.4.1 of version 02 of the PoA-DD. 'Job cards' were introduced to properly monitor replacement lamps and avoid double counting of replacement lamps. Furthermore, changes were made to the way in which the Lag_Time is calculated. Rather than estimating the average number of days between the delivery date and the purchase date, the project proponent will estimate the Lag_Time based on the average number of days between the date of manufacture and the purchase date. The change was</p>	The revised DDs version2 covered the requested issues. OK, but one further clarification on the sampling size equation at E.7.2.of PoA-DD, and B.6.1.of generic CPA-DD / CPA-DD-BFPU / CPA-DD-SSK with that used at EB66 Annotations Annex 27 (Best Practices Examples on Sample Size and Reliability Calculation ).



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			<p>made because it has proven impractical to record the serial numbers of all the project lamps at the point where they are delivered to the CPA entity. The date of manufacture, however, is part of the serial number and can, therefore, be monitored more easily because the serial number will be given on the warranty card/receipt or other purchase documentation.</p> <p>So it will be easy to calculate the average number of days between the date of manufacture and the date of purchase.</p> <p>Changes were made in section A.4.4.1, E.6.2 and E.7.1 of version 02 of the PoA-DD and in sections B.6.1 of version 02 the CPA-DDs</p> <p>4. Initially, the project planned to reward people for participating in the monitoring survey because a lot of surveys take place in Kenya and Uganda and there might be a survey fatigue. However, providing an incentive for participation in the monitoring might also create the impression that the project is influencing the process. Therefore, it is decided not to offer an incentive. Reference to an incentive for participation in the monitoring process has been removed from section B.6.1 in version 02 of the specific CPA-DDs for both Kenya and Uganda and in section E.7.2 in version 02 of the PoA-DD</p> <p>5. A note was made in section A.4.4.1 of version</p>	



## CDM Validation Protocol on Barefoot Power Lighting Programme

TABLE-2 Resolution of Corrective Actions and Clarification Requests


No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
			of the PoA-DD and section B.6.1 of version 02 of the CPA-DDs for Kenya and Uganda stating that records will be kept until 2 years after the end of the last crediting period. Section A.4.4.1 also contains further specification on the record keeping for survey information including sampling results, visiting records, etc. The questionnaire template in Annex 4 of version 02 of the PoA-DD and CPA-DDs also includes a field for the signatures from both surveyor and interviewee.	
			<u>Response to further clarifications</u> The sample size equation at section E.7.2. of ver02 of the PoA-DD, and B.6.1. of ver02 of generic CPA-DD / CPA-DD-BFPU / CPA-DD-SSK has been revised to the multi-stage sampling equation given in EB66 Annotations Annex 27 (Best Practices Examples on Sample Size and Reliability Calculation). Section E.7.2 of ver03 of the PoA-DD, and B.6.1. of ver03 of generic CPA-DD / CPA-DD-BFPU / CPA-DD-SSK applies the multi-stage sampling equation. The details of the sample calculations are given in the spreadsheet in reference	The revisions to “the multi-stage sampling equation” were validated and confirmed to be adequate. OK CL-10 was closed out



## CDM Validation Protocol on Barefoot Power Lighting Programme


TABLE-2 Resolution of Corrective Actions and Clarification Requests

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-11	<p>&lt;Environmental aspect&gt;</p> <ol style="list-style-type: none"> <li>1) The description at PoA-DD C.3 shall be replying about whether EIA report is requested in Kenya</li> <li>2) The project participant is requested to provide the contract document with the licensed disposal company with its authorized certificate</li> <li>3) The copy of key part of the local regulation code such as 22 at foot note of CPA-DD SSK-KE-01 shall be provided and its implementation level in Kenya would be explained</li> <li>4) The example copy of issuance of certificate for the imported project lamps shall be provided</li> </ol>	10.2	<ol style="list-style-type: none"> <li>1. The description in section C.3 of version 02 of the PoA-DD has been revised to describe whether EIA report is requested in Kenya and Uganda.</li> <li>2. To be provided</li> <li>3. The copy of key part of the local regulation code is provided in BFP Reference 5 on p. 36 and BFP reference 43 on p. 5-8. Copies of key parts of local regulation codes of CPA-DD BFP-UG-01 are provided in Barefoot Power references 25 and 26</li> <li>4. An example copy of issuance of certificate for Kenya will be provided during the on-site visit.</li> </ol>	<ol style="list-style-type: none"> <li>1. The version02 shall be provided</li> <li>2. To be provided</li> <li>3. It was confirmed.</li> <li>4. To be provided</li> </ol>
			<ol style="list-style-type: none"> <li>2. A Memorandum of Understanding (MoU) of Barefoot Power and a licensed recycling company in Kenya (East African Computer Recycling) was provided during the onsite visit (see reference 34). The MoU also indicates the company has a NEMA license.</li> <li>4. Certificates for imported project lamps in Kenya and Uganda were provided during the JCI site visit. (see Barefoot Power reference 35 for the Kenya certificate and Barefoot Power reference 36a and 36b for the Uganda certificate)</li> </ol>	The provided evidences were verified to be adequate. OK CL-11 was closed out

	JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme				

**TABLE-2 Resolution of Corrective Actions and Clarification Requests**

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-12	<Stakeholders consultation> 1) The project participant is requested to provide Q&A sheet and/or Summary report of stakeholders consultation including photos (if any)	9	Evaluation forms and the Local Stakeholder Consultation report for the stakeholder consultation in Kenya are provided in BFP (reference 8 and 9.) for the Kenya stakeholder consultation and Barefoot Power reference 28 and 42 for the Uganda stakeholder consultation. Further pictures were also provided. See BFP Reference 56-58 for the Kenyan LSC and BFP Reference 59-61 for the Uganda LSC	The evidences of the two countries were provided OK CL-12 was closed out
CL-13	The business licenses of the project participants will be verified	3.6	The business licenses for both Smart Solar in Kenya will be provided during the onsite visit.	The copies of SSK and a confirmation letter of change name of BFPU shall be provided.
			The business license for Smart Solar in Kenya was provided during the JCI site visit. See Barefoot Power reference 37. The business license for Base Technologies (U) Limited was provided as reference 62 and the name change from Base Technology (U) Limited to Barefoot Power Uganda Limited is provided as reference 46.	The evidences were reviewed. OK CL-13 was closed out
CL-14	The date at E.8. shall be same date at A.1. of PoA-DD	7.1(6)	The date at section E.8 has been corrected to be the same date at section A.1. of version 2 of PoA-DD.	The revisions was adequate. OK CL-14 was closed out
<b>FAR</b>	<b>Forward Action Requests</b>			
FAR-1	As BFP has told they would not intend to make a contract with a CER buyer before the request for registration, a LoA by Annex-I Party shall be submitted to EB before request for issuance of CER			

	JCI CDM Center	<b>APPENDIX A</b>	No : JCI-CDM-VAL-11-037	Rev. No 05
CDM Validation Protocol on Barefoot Power Lighting Programme				

<b>TABLE-2 Resolution of Corrective Actions and Clarification Requests</b>				
No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE -1	Summary of project owner response	Validation team Conclusion
<b>FAR-2</b>	The performance certificate of the project lamps quality by third party shall be provided before verification.			

## APPENDIX B

## Certificate of Appointment of Validation Team

Project Title	Barefoot Power Lighting Programme
Applied Methodology	AMS-III.A.R. Version 01 Sectoral Scope 1

Date: September 13, 2011

Designated Operational Entity: Japan Consulting Institute (JCI)

Reflecting the competence criteria of JCI, 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

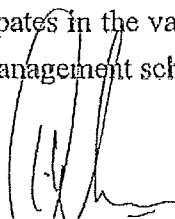
Date: 20/9/2011

Client: Barefoot Power Pty Limited

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)

Harry Andrews

(Title)

Director.

20/9/2011

## Validation Team

Validation Team	Name	Assigned Role
Leader	Takayuki Abe	All relevant issues (TA: 1.2)
Member	Haruo Sawada	CDM auditor (TA: 1.2)

Technical Reviewer	Hideyuki Sato	Energy Industries (TA: 1.2)
--------------------	---------------	-----------------------------