



RINA

# PoA VALIDATION REPORT


**Final**

“Greenlight Solar PV Lighting India”  
in  
India

Report N° 2011-MU-31-MD

Revision N° 1.1

# VALIDATION REPORT


|   |                                       |  |   |                     |
|---|---------------------------------------|--|---|---------------------|
| <b>Client:</b><br>J.P.Morgan Ventures Energy Corporation  |                                       | <b>Client contact:</b><br>Mr. Philip Hardwick  |   |                     |
| <b>PoA Title:</b><br>Greenlight Solar PV Lighting India   |                                       | <b>Country:</b> India  |   |                     |
| <b>Specific CPA Title:</b><br>Greenlight Solar PV Lighting India "CPA 01"   |                                       | <b>Country:</b> India  | <b>Estimated CERS (tCO<sub>2</sub>e) CPA</b><br><br>56,397 annual average |                     |
| <b>Report No.:</b><br>2011-MU-31-MD   |                                       | <b>Revision:</b> 1.1   | <b>Date of this report:</b><br><br>31/12/2012                             |                     |
| <b>Approved by (Decision Maker):</b><br><br>Roberto Cavanna  |                                       |  | <b>Date of approval:</b><br>31/12/2012                                    |                     |
| <b>Methodology</b>  |                                       |  |   |                     |
| <b>Number:</b><br>AMS-III.AR  | <b>Version:</b><br>03.0 of 20/07/2012 | <b>Title:</b><br>Substituting fossil fuel based lighting with LED/CFL lighting systems | <b>Scale</b><br>Small-scale   | <b>SS(s):</b><br>01 |

RINA Services S.p.A. (RINA), commissioned by J.P.Morgan Ventures Energy Corporation, has performed the validation of the PoA titled "Greenlight Solar PV Lighting India" in India, with regard to the relevant requirements for CDM PoA activities.

This report summarizes the findings of the validation of the PoA (Greenlight Solar PV Lighting India), the CDM-SSC-PoA-DD version 04 dated 29/11/2012 with generic information relevant to all CDM programme activities (CPAs) and one completed CPA (Greenlight Solar PV Lighting India "CPA 01"), CDM-SSC-CPA-DD, version 04 dated 29/11/2012 to be included under this PoA. The PoA applied "AMS-III.AR. TYPE III - Other Project Activities – Substituting fossil fuel based lighting with LED lighting systems (version 03.0)", and the relevant Standards and Guidelines.

The total emission reductions from the Greenlight Solar PV Lighting India "CPA 01" are estimated to be an annual average of 56,397 tCO<sub>2</sub>e per year over the 7 years' crediting period under the PoA (Greenlight Solar PV Lighting India) with 28 years' crediting period.

In conclusion, it is RINA's opinion that the PoA "Greenlight Solar PV Lighting India", in "India", as described in the PoA-DD version 04 of 29/11/2012 and Specific CPA-DD version 04 of 29/11/2012, meets all relevant requirements for CDM PoA and all relevant host Party criteria and correctly applies the baseline and monitoring methodology "AMS-III.AR", "Substituting fossil fuel based lighting with LED/CFL lighting systems", version 03.0 of 20/07/2012. Hence RINA requests the registration of the PoA under CDM.

|  |   |
|--|---|
| <b>Work carried out by:</b><br>Reghu Kumar Raghavan Nair<br>Naresh Badhwar<br>Champok Buragohain<br>Saurabh Mittal<br>Karthika Verma   | <input checked="" type="checkbox"/> No distribution without permission from the Client or organizational unit responsible<br><input type="checkbox"/> Strictly confidential<br><input type="checkbox"/> Unrestricted distribution |
| <b>Work verified by (AO Authorized office signing for the DOE)</b><br><br>Laura Severino  | <b>Keywords:</b><br>Climate Change, Kyoto Protocol, Clean Development Mechanism, Validation   |

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## Abbreviations

|                   |  |
|-------------------|--|
| BE                | Baseline Emissions   |
| CAR               | Corrective Action Request                                      |
| CDM               | Clean Development Mechanism                                    |
| CDM M&P           | Modalities and Procedures CDM                                  |
| CDM-VVM           | Clean Development Mechanism Validation and Verification Manual |
| CER(s)            | Certified Emission Reduction(s)                                |
| CH <sub>4</sub>   | Methane  |
| CL                | Clarification Request  |
| CME               | Coordinating and Managing Entity                               |
| CO <sub>2</sub>   | Carbon dioxide   |
| CO <sub>2</sub> e | Carbon dioxide equivalent                                      |
| CP                | Certification Program  |
| CPA               | Component Programme Activities                                 |
| CPA-DD            | Component Project Activity Design Document                     |
| CPAI              | Component Project Activity Implementer                         |
| DBT               | Daily burn time  |
| DC                | Direct Current.  |
| DD                | Design Document  |
| DNA               | Designated National Authority                                  |
| DOE               | Designated Operational Entity                                  |
| EB                | Executive Board  |
| EIPL              | EcoSecurities India Private Limited                            |
| EIA               | Environmental Impact assessment                                |
| ER                | Emission Reductions  |
| ERPA              | Emission Reduction Purchase Agreement                          |
| FAR               | Forward Action Request   |
| GHG(s)            | Greenhouse gas(es)   |
| GWP               | Global Warming Potential                                       |
| IPCC              | Intergovernmental Panel on Climate Change                      |
| LoA               | Letter of Approval   |
| LED               | Light Emitting Diode   |
| MoV               | Means of Verification  |
| MOC               | Modalities of Communication Statement                          |
| MSC               | Micro Scale  |
| MP                | Monitoring Plan  |
| MR                | Monitoring Report  |
| NGO               | Non-governmental Organization                                  |
| ODA               | Official Development Assistance                                |
| PDD               | Project Design Document  |
| PE                | Project Emission   |
| PoA               | Programme of Activities  |
| PoA-DD            | CMD Programme of Activities Design Document                    |

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|        |   |
|--------|---|
| PP(s)  | Project Participant(s)                                |
| Ref.   | Document Reference                                    |
| RINA   | RINA Services Spa                                     |
| SPV    | Solar Photovoltaic Panel                              |
| SS(s)  | Sectoral Scope(s)                                     |
| SSC    | Small Scale   |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VVM    | Validation and Verification Manual                    |

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## 1 INTRODUCTION

J.P.Morgan Ventures Energy Corporation has commissioned RINA to carry out the validation of the PoA “Greenlight Solar PV Lighting India” project in India.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting.

### 1.1 Objective

The objective of the Validation is to have an independent evaluation of a small-scale PoA project activity with each generic small-scale component project activity (CPAs) and any CPA proposed to be included in the PoA by a designated operational entity against the requirements of the CDM as set out in decision 3/CMP.1, its annex and relevant decisions of the COP/MOP, on the basis of the Programme Design Document (POA-DD) and of the Component Project Activity Design Document (CPA-DD). In particular, the demonstration of additionality of the PoA as a whole, the eligibility criteria for inclusion of a CPA in the PoA, the baseline determination for each generic CPA, the monitoring plan for each generic CPA, the estimated emission reduction from any CPA proposed in the project and the programme’s compliance with relevant UNFCCC requirements and host Party criteria are validated in order to confirm that the programme design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM PoA projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

### 1.2 Scope

The validation scope is to review the PoA-DD/CPA-DD against the UNFCCC criteria for CDM.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, the simplified modalities and procedures for small-scale CDM project activities, the procedures for registration of programme of activity as a single CDM and the subsequent decisions by the CDM Executive Board.

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

## 2 METHODOLOGY

Validation was conducted using RINA procedures in line with the requirements specified in the CDM M&P, the latest version of the CDM Validation and Verification Manual, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The validation consisted of the following three phases:

- Document review;
- Follow-up actions;
- The resolution of outstanding issues and the issuance of the final validation report.

The following sections outline each step in more detail.

### 2.1 Document Review

The PoA-DD, version 04 of 29/11/2012 **/01/**, & previous versions version 03 of 09/05/2012 **/01/**, version 02 of 20/01/2012 **/01/**, version 01 of 01/10/2011 and the CPA-DD version 04 of 29/11/2012 **/02/** & previous versions version 03 of 09/05/2012 **/01/**, version 02 of 20/01/2012 & version 01 of 01/10/2011 in particular the applicability of the methodology, the baseline determination, the additionality of the project activity, the starting date of the project, the monitoring plan, the emission reduction calculations

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provided in the form of a spreadsheet, (GLP- CPA 1 ER calculator\_01-10-2011\_confidential.xls) version 01 dated 01/10/2011 and version 02 (GLP- CPA 1 ER calculator) dated 29/11/2012 **/28/**, were assessed as part of the validation.

The following table lists the documentation that was reviewed during the validation.

|      |   |
|------|---|
| /01/ | EcoSecurities India Private Limited: CDM-PoA-DD for PoA "Greenlight Solar PV Lighting India" in India, version 01 of 01/10/2011, version 02 of 20/01/2012, version 03 of 09/05/2012 and version 04 of 29/11/2012                  |
| /02/ | EcoSecurities India Private Limited: CDM-SSC-CPA-DD (Generic CPA) , version no: XX dated XX/MM/20XX   |
| /03/ | EcoSecurities India Private Limited: CDM-CPA-DD for Specific CPA "Greenlight Solar PV Lighting India "CPA 01" in India, version 01 of 01/10/2011, version 02 of 20/01/2012, version 03 of 09/05/2012 and version 04 of 29/11/2012 |
| /04/ | CDM Executive Board : 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 4.1, Annex 38 of EB 55 )     |
| /05/ | CDM Executive Board: Approved methodology AMS-III.AR "Substituting fossil fuel based lighting with LED/CFL lighting systems" version 03.0, EB 68 of 20/07/2012 and its previous version 01, Annex 19 of EB 58 dated 26/11/2010.   |
| /06/ | CDM-Executive Board: Guidelines for Demonstrating additionality of micro scale project activities, version 04.0, Annex 26 of EB 68 dated 20/07/2012   |
| /07/ | CDM Executive Board: Guidelines on Assessment of Debundling for SSC project activities, version 03, Annex 13 of EB 54 dated 28/05/2010  |
| /08/ | CDM Executive Board: Standard for sampling and surveys for CDM project activities and programme of activities version 03.0, Annex 4 of EB 69 dated 13/09/2012   |
| /09/ | EcoSecurities India Private Limited: Minutes of the Stakeholder Meeting held on 09/02/2011  |
| /10/ | EcoSecurities India Private Limited: Copy of Photographs taken during the stakeholder meeting conducted on 09/02/2011   |
| /11/ | EcoSecurities India Private Limited: List of participants of the stakeholder meeting conducted on 09/02/2011  |
| /12/ | EcoSecurities India Private Limited:Newspaper article in Hindi language as outcome of the stakeholder meeting published on "Sanmarg" dated 10/02/2011   |
| /13/ | Greenlight Planet India Pvt Ltd.: Sun King Warranty Registration form as sample of customer registration form   |
| /14/ | Certified Emissions Reduction Purchase Agreement signed between JPMVEC and GLP dated 16/12/2009 and the amendment copy inserting EcoSecurities India Private Limited as buyer for the PoA dated 24/07/2012                        |
| /15/ | Schatz Energy Research Centre: Test Report conducted for GLP manufactured Sun King Pro (LED lamp) dated 05/08/2011  |
| /16/ | Lighting Africa: Test Report conducted for GLP manufactured Sun King Pro (LED lamp) for lumen maintenance at 2000 hours of operation dated 07/04/2011   |
| /17/ | Greenlight Planet India Pvt Ltd.: Technical specifications of Sun King Lamps, Sun King Pro (LED lamp) and Sunking solo lamps.   |
| /18/ | Greenlight Planet India Pvt Ltd.: Sample copy of warranty card (1 year) for Sun King Pro (LED lamp)   |
| /19/ | Rehman I. H., Malhotra P., Pal R. C., Singh P. B: <i>Availability of kerosene to rural households: a case study from India</i> , Energy Policy available online 07/06/2004  |
| /20/ | Oleg Dzioubinski & Ralph Chipman: <i>Trends in Consumption and Production: Household Energy Consumption</i> , April 1999  |
| /21/ | Evan Mills: <i>Technical and Economic Performance Analysis of Kerosene Lamps and Alternative Approaches to Illumination in Developing Countries</i> dated 28/06/2003  |



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|------|--|
| /22/ | Joseph E. Shepherd (Corresponding author): <i>Kerosene Lamps and Cookstoves - the Hazards of Gasoline Contamination</i> , <i>Aeronautical and Mechanical Engineering California Institute of Technology</i> dated 10/07/2007   |
| /23/ | Ministry of law and justice: The Electricity Act 2003 dated 26/05/2003   |
| /24/ | Ministry of Statistic and Programme Implementation, Govt. of India: Press note on “Energy Sources of Indian Households for Cooking and Lighting, 2004-05 dated 30/04/2007  |
| /25/ | TERI: Rural energy data sources and estimations in India   |
| /26/ | Planning Commission, Govt. of India: Report of the Working group on Public distribution system and food security for the tenth five year plan (2002-2007), dated November 2001   |
| /27/ | Ministry of Environment & Forest (MoEF); Notification under Environment (Protection) Rules, 1986, dated 14/09/2006   |
| /28/ | EcoSecurities India Private Limited: CER excel spreadsheet (GLP- CPA 1 ER calculator_01-10-2011_confidential.xls) version 01 dated 01/10/2011 and version 02 (GLP- CPA 1 ER calculator) dated 29/11/2012.  |
| /29/ | CDM-Executive Board: Clarifications regarding the “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 01, Annex 26 of EB 60 dated 15/04/2011                 |
| /30/ | CDM-Executive Board: Small-Scale CDM Programme of Activities Design Document form (CDM-SSC-PoA-DD), version 01   |
| /31/ | CDM-Executive Board: Small-Scale CDM Programme Activity Design Document form (CDM-SSC-CPA-DD), version 01  |
| /32/ | UNFCCC: Status of ratification of the Kyoto Protocol, website “ <a href="http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php">http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php</a> ” in English language retrieved on 15/12/2012                |
| /33/ | UNFCCC: Website indicating the list of DNAs “ <a href="http://cdm.unfccc.int/DNA/index.html">http://cdm.unfccc.int/DNA/index.html</a> ” in English language retrieved on 20/08/2012  |
| /34/ | Government of India, Ministry of Environment and Forests; Host Country Approval to the Programme of Activities (PoA) “Greenlight Solar PV Lighting India” by M/s EcoSecurities India Private Limited (Coordinating/Managing entity-CME)-regarding CDM dated 22/11/2012                   |
| /35/ | Environment Agency; United Kingdom: Letter of approval issued to “J.P. Morgan Ventures Energy Corporation” for the programme of activity “Greenlight Solar PV Lighting India” dated 13/12/2012   |
| /36/ | CDM Executive Board; Clean Development Mechanism Validation and Verification Manual, Version 01.2, EB 55, Annex 1 dated 30/07/2010   |
| /37/ | CDM Executive Board: Guideline on the demonstration of additionality of small-scale project activity, Version 09, Annex 27, EB 68 dated 20/07/2012   |
| /38/ | National CDM Authority, Ministry of Environment and Forests (Govt. of India): Host country approval process website “ <a href="http://www.cdmindia.gov.in/detail_news.php?id=3">http://www.cdmindia.gov.in/detail_news.php?id=3</a> ” in English language retrieved on 15/12/2012.       |
| /39/ | CDM Executive Board: Glossary CDM terms, version 06, Annex 63, EB 66 dated 02/03/2012  |
| /40/ | Greenlight Planet India Pvt Ltd.: Copy of the first solar powered lamp (Sun King Pro) selling form with warranty registration form dated 01/01/2012.   |
| /41/ | National Sample Survey Organisation: NSSO, 2010- <i>Household Consumer Expenditure in India, 2007-08</i> –NSS Report Number 530, Table 15R and 15U, Ministry of Statistics and Programme Implementation, Government of India.  |
| /42/ | Ministry of Home Affairs, Govt. of India: Census of India 2011 – Source of lighting, 2001-2011 <a href="http://www.censusindia.gov.in/2011census/hlo/District_Tables/HLO_District_Tables.html">http://www.censusindia.gov.in/2011census/hlo/District_Tables/HLO_District_Tables.html</a> |
| /43/ | Lighting Africa: Test Report conducted for GLP manufactured Sun King Solo (LED lamp) for lumen maintenance at 2000 hours of operation dated 15/08/2012   |
| /44/ | Ministry of Environment and Forest; Govt. of India: Batteries (Management and Handling)  |

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|------|---|
|      | Rules, 2001   |
| /45/ | Greenlight Planet India Pvt Ltd.: Statement for mode of funding for the 'CPA01' dated 07/05/2012  |
| /46/ | The World Bank: 'World Bank study outlines options for India's renewable energy future'; website ' <a href="http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTENERGY2/0,,contentMDK:22831697~pagePK:210058~piPK:210062~theSitePK:4114200,00.html">http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTENERGY2/0,,contentMDK:22831697~pagePK:210058~piPK:210062~theSitePK:4114200,00.html</a> ' in English language retrieved on 17/12/2012. |
| /47/ | International Energy Agency: Website ' <a href="http://www.iea.org/weo/docs/weo2011/other/Energy_Poverty/WEO-2011_new_Electricity_access_Database.xls">http://www.iea.org/weo/docs/weo2011/other/Energy_Poverty/WEO-2011_new_Electricity_access_Database.xls</a> ' in English language retrieved on 17/12/2012.   |
| /48/ | CDM Executive Board: 'Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities', version 01.0, Annex 3 of EB 65 dated 25/11/2011.   |
| /49/ | Greenlight Planet India Pvt Ltd.: Stakeholder invitation letters and public notice for stakeholder invitation dated 25/01/2011  |
| /50/ | Greenlight Planet India Pvt Ltd.: Minutes of the stakeholder consultation meeting, photograph copies of the stakeholder meeting and list of participants dated 09/02/2011.  |
| /51/ | EcoSecurities India Private Limited: Modalities of Communication for communicating with the Executive Board, signed on 19/12/2012   |
| /52/ | Validation Service Agreement with RINA Services S.p.A. for validation of the PoA and associated CPA, dated 30/09/2011   |
| /53/ | Greenlight Planet India Pvt Ltd.: Audited Financial Statements of GLP including sales information for year 2009-10 and 2010-11  |
| /54/ | LoI between Greenlight Planet India Pvt Ltd. and J.P. Morgan Ventures Energy Corporation for development of Solar LED Lighting CDM PoA, dated 01/07/2009  |
| /55/ | Communication between Greenlight Planet Inc USA and Carbon Consultant regarding potential for development of solar lighting PoA, dated 26/11/2008   |
| /56/ | Greenlight Planet India Pvt Ltd.: Certification of Incorporation of GLP India Pvt. Ltd., dated 24/12/2008   |
| /57/ | Service Agreement between GreenTech Knowledge Solutions Pvt. Ltd. and J.P. Morgan Ventures Energy Corporation for developing Solar lighting CDM PoA, 01 September 2009  |
| /58/ | CDM Executive Board: Guideline on the demonstration and assessment of prior consideration of the CDM, EB62, Annex 13  |
| /59/ | Raosoft: Sample size calculator; website ' <a href="http://www.raosoft.com/samplesize.html">http://www.raosoft.com/samplesize.html</a> ' in English language retrieved on 17/12/2012.   |

### 2.2 Follow-up actions

On 09/04/2012 until 13/04/2012, RINA conducted a physical site visit to Begusarai, Vaishali, Saran, Jahanabad and Chhapra district in Bihar (one of the state in which the first CPA is implemented) to resolve questions and issues identified during the document review and to perform interviews with relevant stakeholders in the host country.

The key personnel interviewed and the main topics of the interviews are summarized in the table below.

|     | Date       | Name and Role  | Organization                     | Topic  |
|-----|------------|--|----------------------------------|--|
| /a/ | 09/04/2012 | Sumi Shweta<br>(Representative from CPA Implementer) | Greenlight Plant India Pvt. Ltd. | Project activity, project lamp details, National legislation, regulation and policies on programmes. |

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|     |                         |   |  |   |
|-----|-------------------------|---|--|---|
| /b/ | 09/04/2012 – 13/04/2012 | Nongo Ezung, Shuvadip Bose (Zonal Business Manager) | Greenlight Plant India Pvt. Ltd.   | Sales data, Double counting issues, operational and management structure etc.                         |
| /c/ | 09/04/2012              | Vivek Sarangi (Representative from CPA Implementer) | Greenlight Plant India Pvt. Ltd.   | Baseline details, warranty of project lamps, training/replacement details etc.                        |
| /d/ | 09/04/2012 – 13/04/2012 | Prachi Khanna (Project Manager)                     | EcoSecurities India Pvt. Ltd.  | PoA-DD, CPA-DD, CDM requirements, baseline calculations, de-bundling issues, CME role etc.            |
| /e/ | 09/04/2012 – 13/04/2012 | Rohit Lohia (Principal Project Manager)             | EcoSecurities India Pvt. Ltd.  | PoA-DD, CPA-DD, CDM requirements, baseline calculations, de-bundling issues, CME role etc.            |
| /f/ | 09/04/2012              | Rambilash Paswan (End User)                         | Local Villager, Garka Block  | Sustainable development issues, stakeholder meeting, project lamp details, baseline fuel details etc. |
| /g/ | 10/04/2012              | Rajeshwar Prasad (Distributor)                      | SunKing Sathi  | Sustainable development issues, stakeholder meeting, project lamp details, baseline fuel details etc. |
| /h/ | 10/04/2012              | Kaushal Kishore Choudhary (End User)                | Local Villager, Saran District   | Sustainable development issues, stakeholder meeting, project lamp details, baseline fuel details etc. |
| /i/ | 11/04/2012              | Gautam Kumar (End User)                             | Local villager, Begusarai district   | Sustainable development issues, stakeholder meeting, project lamp details, baseline fuel details etc. |
| /j/ | 12/04/2012              | Monaj Kumar Jha (End User)                          | Local Villager, Motihari tehsil.   | Sustainable development issues, stakeholder meeting, project lamp details, baseline fuel details etc. |
| /k/ | 09/04/2012 – 13/04/2012 | 88 numbers of end users                             | End users in villagers of districts of Begusarai, Vaishali, Saran, Jahanabad and Chhapra | Sustainable development issues, stakeholder meeting, project lamp details, baseline fuel details etc. |

### 2.3 Resolution of outstanding issues

The objective of this phase of the validation is to resolve any outstanding issues which need to be clarified for RINA's positive conclusion on the project design.

To guarantee transparency a validation protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of validation and the results from validating the identified criteria. The validation protocol consists of four tables; the different columns in these tables are described in the figure below (see Figure 1). The completed validation protocol is enclosed in Appendix A to this report.

A corrective action request (CAR) is raised if one of the following occurs:

- The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions.

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- The CDM requirements have not been met.
- There is a risk that the emission reductions cannot be monitored or calculate.

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

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 CDM requirements for registration. CARs, CLs and FARs identified are included in the validation protocol in Appendix A of this report.

# VALIDATION REPORT

Figure 1 Validation protocol tables

| Validation Protocol, Table 1 - Mandatory requirement for CDM Programme of Activities |  |   |
|--|--|---|
| Requirement  | Reference  | Conclusion  |
| The requirements the project must meet.  | Makes reference to the documents where the answer to the requirement is found. | This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) if a requirement is not met. A request for clarification (CL) is used when the validation team has identified a need for further clarification. |

| Validation Protocol, Table 2 - Requirement checklist   |   |  |   |   |
|--|---|--|---|---|
| Checklist Question   | Ref.  | MoV  | Comments  | Conclusion  |
| The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in three different parts; Part I (Programme of Activities); Part II (Generic CPA); and CPA Part. Each part is organized in different sections. | Makes reference to documents where the answer to the checklist question or item is found. | Explain how conformance with the checklist question is investigated. Examples are document review (DR), interview or any other follow-up actions (I), cross checking (CC) with available information relating to projects, (N/A) means not applicable. | The discussion on how the conclusion is arrived at and the conclusion on the compliance with checklist question so far. | For CAR, CL and FAR see the definitions above. OK is used if the information and evidence provided is adequate to demonstrate compliance with CDM requirements. |

| Validation Protocol, Table 3 - Resolution of Corrective Action Requests and Clarification |   |   |   |
|---|---|---|---|
| Corrective action requests and/or clarification requests                                  | Reference to Table 2  | Response by project participants  | Validation Conclusion   |
| The CAR and/or CLs raised in table 2 are repeated here.                                   | Reference to the checklist question number in Table 2 where the CAR or CL is explained. | The responses given by the project participants to address the CARs and/or CLs. | The validation team's assessment and final conclusion of the CARs and/or CLs. |

| Validation Protocol, Table 4 - Forward Action Requests (if no FAR the table 4 is deleted) |   |   |
|---|---|---|
| Forward action request  | Reference to Table 2  | Response by project participants<br>Validation Conclusion   |
| The FAR raised in table 2 is repeated here.   | Reference to the checklist question number in Table 2 where the FAR is explained. | Response by the project participants on how forward action request will be addressed prior to first verification. |

# VALIDATION REPORT

## 2.4 Internal quality control

All the revisions of the validation report before being submitted to the client were subjected to an independent internal technical review to confirm that all validation activities had been completed according to the pertinent RINA instructions.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for CDM validation and verification.

## 2.5 Validation team and the technical reviewer(s)

The validation team and the technical reviewers consist of the following personnel:

| Role   | Last Name                   | First Name     | Country |
|--|-----------------------------|----------------|---------|
| Team Leader (at the beginning of the validation) | Badhwar                     | Naresh         | India   |
| Team Leader                                      | Raghavan Nair               | Reghu Kumar    | India   |
| CDM Validator                                    | Mittal                      | Saurabh        | India   |
| CDM Validator & Technical Expert                 | Champok                     | Buragohain     | India   |
| Financial Expert                                 | Verma                       | Karthika       | India   |
| Technical Reviewer                               | Arokiasamy Amalorpavanathan | Cyril Augustus | India   |
| Technical Reviewer                               | Valoroso                    | Rita           | Italy   |

## 3 VALIDATION FINDINGS

The findings of the validation related to the project, as described in the PoA-DD version 04 of 29/11/2012 and previous versions 03 of 09/05/2012, version 02 of 20/01/2012 and version 01 of 01/10/2011 /01/, and CPA-DD version 04 of 29/11/2012 and previous versions 03 of 09/05/2012, version 02 of 20/01/2012 and version 01 of 01/10/2011 /03/ are stated in the following sections.

The validation requirements, the means of validation and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

### 3.1 Approval, Authorization and Participation

#### 3.1.1 Participation

The project's host Party is India and the Annex I Party is United Kingdom of Great Britain and Northern Ireland.

India and United Kingdom of Great Britain and Northern Ireland fulfil the requirements to participate in the CDM. Both have ratified the Kyoto protocol and established a DNA as the participating requirements for CDM under the Kyoto Protocol. India ratified the Kyoto Protocol on 26/08/2002 /32/ and established as DNA the National CDM Authority (NCDMA) under Ministry of Environment and Forest, Govt. of India as per the UNFCCC website /33/; United Kingdom of Great Britain and Northern Ireland ratified the Kyoto Protocol on 31/05/2002 /32/ and established as DNA the 'Environment Agency' as per the UNFCCC website /33/.

#### 3.1.2 Project Participants and CME

The project participant(s) are EcoSecurities India Private Limited from India and J.P.Morgan Ventures Energy Corporation from United Kingdom of Great Britain and Northern Ireland, both participants are private entities. The CME, as the entity which communicates with the Board is identified in EcoSecurities India Private Limited from India. The project participants are correctly listed in table A.3



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of the PoA-DD and the information is consistent with the contact details provided in Annex 1 of the PoA-DD /01/ as well the contact information of the designated CME.

The participation of each project participant has been approved by a Party to the Kyoto Protocol in line with VVM, para 51-54 as explained below under "Approval and Authorisation(s)".

### 3.1.3 CPA Implementer(s)

The first CPA is being implemented by Greenlight Planet India Private Limited. (GLP) from India. The CPA implementer is correctly listed in section A.3 of the CPA-DD.

### 3.1.4 Approval and Authorization(s)

The DNA of India issued a Letter of Approval on 22/11/2012, authorizing EcoSecurities India Private Limited as project participant and the coordinating/managing entity (CME) of the PoA and confirming that the project assists in achieving sustainable development and the PoA project activity contributes to the sustainable development of the Host Country /34/. The Letter of Approval from United Kingdom of Great Britain and Northern Ireland was issued on 13/12/2012, authorizing J.P. Morgan Ventures Energy Corporation as project participant /35/. Both the letters were received from the PP and refer to the precise proposed Programme of Activities title in the POA-DD submitted for registration /01/ and confirm that the participation is voluntary.

The authenticity of the letters of approval and authorization has been validated by verifying the original LoAs received directly from PPs. Both the letters have been issued by the respective DNAs of the Host Party and the Annex I Party for the specific proposed project activity and RINA has not found reason to doubt their authenticity. By checking the above documents /34/, /35/ RINA considers both the LoAs in accordance with paragraphs 45-48 of the VVM /36/, and the CME has been authorized in accordance to para 10 of Procedure for registration of a Programme of activities /04/.

## 3.2 Public funding of PoA and of the CPA

The proposed project does not involve any public funding from an Annex I Party, and the validation did not reveal any information that indicated that the project could be seen as a diversion of official development assistance (ODA) funding towards the host country. To ensure that each CPA under the PoA does not results in diversion of ODA this has been developed as an inclusion eligibility criteria as stated in section A.4.2.2 of the PoA-DD/01/. Thus, this shall be ensured for each subsequent CPA. The mode of funding involved in the "Greenlight Solar PV Lighting India "CPA 01"" does not involve any public funding and hence does not results in diversion of ODA /45/

## 3.3 Confirmation for CPA:

RINA confirms that the first CPA "Greenlight Solar PV Lighting India "CPA 01" is neither registered as an individual CDM project activity nor is part of another registered PoA. The same was checked from the list of registered projects / PoAs on [www.unfccc.int](http://cdm.unfccc.int/Projects/registered.html) (<http://cdm.unfccc.int/Projects/registered.html>, <http://cdm.unfccc.int/ProgrammeOfActivities/registered.html> ).

The same is also confirmed through checking the other voluntary schemes VCS and GS by checking their respective websites.

|                      |                               |       |  |
|----------------------|-------------------------------|-------|--|
| Project participants | EcoSecurities Private Limited | India | J.P. Morgan Ventures Energy Corporation                                |
| Parties involved     | India (Host Country)          |       | United Kingdom of Great Britain and Northern Ireland (Annex I Country) |
| APPROVAL             |                               |       |  |
| LoA received         | Yes /34/                      |       | Yes /35/   |
| Date of LoA          | 22/11/2012                    |       | 13/12/2012   |

## VALIDATION REPORT

|                                  |   |   |
|----------------------------------|---|---|
| LoA received from                | Directly from PP                            | Directly from PP                            |
| Validation of authenticity       | Verifying the original document <b>/34/</b> | Verifying the original document <b>/35/</b> |
| Validity of LoA                  | Yes   | Yes   |
| <b>PARTICIPATION</b>             |   |   |
| Party is party to Kyoto Protocol | Yes   | Yes   |
| Voluntary participation          | Yes   | Yes   |
| Project contribution to SD       | Yes   | N/A   |
| CME Coordination Approval        | Yes   | N/A   |

### 3.4 PoA/CPA design document

The PoA-DD for the PoA “Greenlight Solar PV Lighting India”, in “India version 04 of 29/11/2012 and previous versions 03 of 09/05/2012, version 02 of 20/01/2012 and version 01 of 01/10/2011 **/01/** and the CPA-DD for the CPA “Greenlight Solar PV Lighting India “CPA 01” version 04 of 29/11/2012 and previous versions 03 of 09/05/2012, version 02 of 20/01/2012 and version 01 of 01/10/2011 **/03/** submitted by the CME have been the basis for the validation process.

RINA confirms that the above DD is based on the currently valid PoA-DD template **/30/** and CPA-DD template **/31/** and in accordance with the relevant guidelines.

The main changes between the PoA-DD version 01 of 01/10/2011, CPA-DD version 01 of 01/10/2012 published for GSC and the final PoA-DD and final CPA-DD version 04 of 29/11/2012 submitted for registration are the following:

- The CME has been revised from J.P. Morgan Ventures Energy Corporation in version 01 of PoA-DD/**01/** and CPA-DD/**03/** to EcoSecurities India Private Limited in the final PoA-DD/**01/** and final CPA-DD **/03/** in line with the amended ERPA **/14/**.
- AMS-III.AR version 01 of 26/11/2010 applied in the webhosted PoA-DD/**01/** & CPA-DD/**03/** has been revised to version 03 of 20/07/2012 in the final version 04 of the PoA-DD/**01/** & final version 04 of CPA-DD **/03/** which is the currently the valid version of methodology/**01/**.
- The scale of the PoA-DD & CPA-DD revised from micro scale (Emission reductions of 20,000 tCO<sub>2</sub>e per year) to small-scale (Emission reductions of 60,000tCO<sub>2</sub>e per year) in line with the ‘guidelines on the demonstration of additionality of small-scale project activity’, Version 09 **/37/** in the final version 04 of the PoA-DD **/01/** & CPA-DD **/03/**.
- The project boundary of CPA1/**03/** has been revised from India to the states of Uttar Pradesh, Bihar, Jharkhand, Odisha and Assam, within political boundary of India where the commonly used fuel for lighting is demonstrated as kerosene.
- The start date of the PoA has been revised from 30/09/2011 in version 01 of PoA-DD/**01/** to 14/10/2011 in version 04 of PoA-DD/**01/** in line with latest “Glossary of CDM Terms” **/39/**.

### 3.5 Programme Design

#### 3.5.1 Programme of activity PoA

The purpose of the proposed PoA is to disseminate battery-charged solar-powered lamps to provide basic lighting service to households using fossil fuel based lighting systems in India. It will thereby replace the fossil fuel based lamps systems currently in use in project households and thereby



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reducing Greenhouse Gas (GHG) emissions resulting from combustion of fossil fuels in the baseline lamps.

Hence, the PoA targets consumers that use kerosene/oil as their primary lighting source in India to replace the fossil fuel based lamps with solar based lighting systems. Hence, the PoA by replacing fossil fuel (kerosene) based lamps as a preferred source of lighting shall result in GHG emission reductions.

The implementation and operational framework of the PoA is managed between the coordinating and managing entity (CME) and the CPA Implementers (CPAI). The CME for this PoA is EcoSecurities India Private Limited and the host nation participant. Its responsibility is to communicate with CDM Executive Board and coordinate the work relating to validation, verification, registration and issuance of carbon credits generated by the PoA and efforts from CPA implementers (CPAIs). J.P. Morgan Ventures Energy Corporation (JPMVEC) is the participant from the Annex 1 party in the programme.

As per the PoD-DD, individual CPA Implementers (CPAI) may or may not act as project participants depending upon the agreement between the CME and corresponding CPAI. Further, subsequent CPAIs may evolve their own network for the sales of lamps under the PoA. However, they must adhere to the general implementing framework described in the PoA-DD **/01/**. Greenlight Planet India Pvt. Ltd. is the CPAI for "Greenlight Solar PV Lighting India "CPA 01"".

The geographical boundary of the PoA is the political boundary of India and each CPA will be within the political boundary of India.

The technology measure involved in the PoA is solar LED based lighting devices. A typical programme solar lamp shall consist of a solar photovoltaic panel (SPV), electronic circuit, storage battery and luminary. SPV captures solar energy and converts it into direct current (DC) electricity which is then stored in a battery. The luminary draws electricity from the battery and provides light. . A brief description of the components of a typical solar powered lamp is given below:

- *Solar Panel:* It uses photovoltaic technology to convert solar energy into electricity.
- *Luminary:* It will be using LED as a light emitting source;
- *Electronics:* Electronic *circuitry* will be present to control the charging, discharging of the battery, driving the luminary with the right voltage/current;
- *Battery:* The battery will be charged by the solar panel during the day and this stored energy will be used to drive the luminaries.

In line with the host country approval requirements **/38/**, the programme contributes towards the sustainable development of the host country and accordingly the PoA has received host country approval **/34/**.

### 3.5.2 Generic Component project activity CPA

A generic CPA shall ensure that the end user of project lamp is one that use kerosene/oil as their primary lighting source in India to replace the fossil fuel based lamps with solar based LED lighting systems. The CPA by replacing fossil fuel (kerosene) based lamps as a preferred source of lighting shall result in GHG emission reductions, improve safety and enhance living standards in the user households over the lifetime of the PoA. . The technology measure involved in the PoA is solar LED based lighting devices. A brief description of the components of a typical solar powered lamp is given below:

- *Solar Panel:* It uses photovoltaic technology to convert solar energy into electricity.
- *Luminary:* It will be using LED as a light emitting source;
- *Electronics:* Electronic *circuitry* will be present to control the charging, discharging of the battery, driving the luminary with the right voltage/current;
- *Battery:* The battery will be charged by the solar panel during the day and this stored energy will be used to drive the luminaries.

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Each CPA can have maximum of 652,173 numbers of operational project lamps in a year to be under the maximum emission reduction limit of 'Guidelines for demonstrating the additionality of small scale project activities', version 09 /37/. Any project lamps in excess of 652,173 numbers of operational project lamps in a year, shall be included in subsequent CPAs by the CPAI. Each CPA will contribute to the sustainable development of the host country since all the CPAs will be under the framework of the PoA.

### 3.5.3 Specific Component Project Design CPA

The proposed CPA – Greenlight Solar PV Lighting India “CPA 1”- is a part of “Greenlight Solar PV Lighting India” PoA. The purpose of the CPA is the dissemination of battery-charged solar-powered lamps to provide basic lighting service to households using fossil fuel based lighting systems in states of Uttar Pradesh, Bihar, Jharkhand, Odisha and Assam. It will replace the fossil fuel based lamps systems currently in use in project households thereby reducing Greenhouse Gas (GHG) emissions resulting from combustion of fossil fuels in the baseline lamps.

At present the CPA involves Sun King, Sun King Pro and Sun King Solo models of Greenlight Planet India Pvt. Ltd. The technical aspects of the project activity described in section A.4 of the CDM-SSC-CPA-DD /03/ has been checked with the technical specification (lamp wattage, illuminance/luminous flux, lifetime, battery type, PV type and capacity, IP Class etc) provided by the lamp manufacturer /17/ and test reports /15/, /16/. New models of lamps may be introduced in the CPA during its lifetime subject to compliance with design specification as per AMS III.AR version 03.0 /05/.

The CPA boundary covers the political boundary of Assam, Bihar, Jharkhand, Odisha and Uttar Pradesh. Kerosene is the most commonly used fuel for lighting within the aforesaid CPA boundary as substantiated through Indian Census data 2011 /42/. Also, during the site visit and interviews with relevant stakeholders (section 2.2 above), it was confirmed that kerosene is commonly used fuel for lighting in the region and the project lamps replaces baseline lamps directly consuming fossil fuel.

The scale of the CPA1 is limited to a maximum number of 652,150 operational project lamps in a given year. Currently significant sales are ongoing in the states of Bihar and Odisha and are expected to expand to other states within the CPA boundary in 2013. The CPA is expected to result an emission reductions of average 56,397 tCO<sub>2</sub>e per year over the 7 years crediting period (starting 01/01/2013) and a total of 394,778 tCO<sub>2</sub>e over the crediting period. Since the emission reduction is under the maximum threshold limit of the applied methodology /05/ and hence, conforms to the “Guidelines for demonstrating the additionality of small scale project activities”, version 09 /37/.

RINA was able to verify all the documented evidence /15/, /16/, /17/, /41/, /42/ and /43/ during the validation process and can confirm that data and considerations are complete and accurate. Moreover RINA confirms that the description of the proposed PoA, as contained in the PoA-DD /01/ and CPA-DD /03/ sufficiently covers all relevant elements, is accurate and complete and that it provides the reader with a clear understanding of the nature of the proposed CDM PoA.

### 3.6 Duration of the PoA/CPA

#### 3.6.1 Start Date and Duration of PoA

The start date of the PoA is 14/10/2011 which is the date of publication of PoA-DD for global stakeholder consultation and is in line with the latest version of glossary of CDM terms /39/. The length of the PoA is 28 years in line with the ‘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 4.1 /04/. Appropriate eligibility criteria for inclusion of CPA in the PoA has been developed to ensure that the start date of the CPA is not prior to the start of the validation of PoA (Section A.4.2.2 of the PoA-DD/01/). Thus for each CPA it will be ensured that the CPA start date is after the commencement of validation of the PoA.

RINA is not required to assess prior consideration of CDM for PoAs, as it is expected that no component of the programme will commence prior to the start date of validation of PoA in accordance with EB 60, Annex 26 “Clarifications Regarding the Procedures for Registration of a Programme of

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Activities As a Single CDM Project Activity and Issuance of Certified Emission Reductions for a Programme of Activities" /29/. RINA confirms that the length of a PoA does not exceed 28 years.

## 3.6.2 Start Date and Duration of the Component Project Design CPA

The starting date of the first CPA is 01/01/2012 which is the date of selling the first solar powered lamp in the CPA as warranty card of the first lamp sold under the PoA dated 01/01/12 /40/. The start date consideration is in line with the latest version of glossary of CDM terms /39/ and hence accepted by the validation team. The crediting period of the CPA has been defined as renewable crediting period of 21 years of which the length of first crediting period is 7 years starting from 01/01/2013 or the date of registration of the CPA in the PoA.

Although demonstration of prior consideration of CDM is not required as the CPA start date is after the starting date of validation of PoA, nevertheless, CPAI has demonstrated serious CDM consideration since the time of conceptualization of the programme. The chronology of events as mentioned in the CPA-DD /03/ have been assessed and checked by the RINA /14/, /53/, /54/, /55/, /56/, /57/. It is confirmed that this is in line with latest version of the Guidelines on the demonstration and assessment of prior consideration of the CDM /58/.

RINA was able to verify all the documented evidence listed above during the validation process. RINA confirms that the start date of any CPA is not prior to the commencement of the validation of the PoA, which is the date the CDM-PoA-DD is first published for global stakeholder consultation, version 01 of 01/10/2011 /01/.

## 3.7 Application of selected baseline and monitoring methodology

### 3.7.1 Selected baseline and monitoring methodology(ies) at PoA level

The PoA correctly applies the approved baseline and monitoring methodology "AMS-III.AR", "Substituting fossil fuel based lighting with LED/CFL lighting systems", version 03 of 20/07/2012 /05/.

The PoA involves solar based LED lighting systems that replace fossil fuel based lamps in the baseline. The project category is small scale Type III project activity and appropriate eligibility criteria have been developed in section A.4.2.2. of the PoA-DD/01/ to ensure that all included CPAs are eligible under the approved baseline and monitoring methodology "AMS-III.AR", "Substituting fossil fuel based lighting with LED/CFL lighting systems", version 03 of 20/07/2012 /05/ and the small scale threshold for type III activities (60,000 tCO<sub>2</sub>e per annum).

### 3.7.2 Application of a baseline and monitoring methodology of each generic CPA

The CPAs shall use the approved small-scale methodology AMS-III.AR "Substituting fossil fuel based lighting with LED/CFL lighting systems", version 03 of 20/07/2012 /05/. The compliance with applicability criteria of AMS III. AR., version 03.0 has been developed as eligibility criteria for inclusion of a CPA in the PoA as described in below and shall be checked at the time of inclusion of the CPA in the PoA. The following gives a detailed justification of application of baseline and monitoring methodology to a generic CPA.

| AMS.III.AR Applicability Criterion   | Justification   |
|--|---|
| This category comprises activities that replace portable fossil fuel based lamps (e.g. wick-based kerosene lanterns) with battery-charged LED/CFL based lighting systems in residential and/or non-residential applications (e.g. ambient lights, task lights, portable lights). | A typical CPA will involve the distribution of a variety of battery-charged solar LED based lighting systems as alternative to fossil fuel based lamps for residential and/or non-residential applications, within the geographical boundary of CPA. This is already incorporated in the following eligibility criteria for inclusion of CPA in the PoA:<br>The technology used under the proposed CPA shall consist of isolated solar LED lighting systems<br>And<br>The CPA shall ensure that the replaced baseline |

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|   |   |
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|   | lamps are those that directly consume fossil fuel. This may be demonstrated through documentation of the common practice of fuel usage for lighting within the CPA boundary (e.g. based on representative sample surveys, official data or peer reviewed literature) that demonstrates that fossil fuel is a commonly used fuel for lighting;   |
| <p>This methodology is applicable only to project lamps whose batteries are charged using one of the following options:</p> <p>(a) Charged by renewable energy system included as part of the Project Lamp (e.g. a photovoltaic system or mechanical system such as a hand crank charger);</p> <p>(b) Charged by a standalone distributed generation system (e.g. a diesel generator set) or a mini-grid i.e. that is not connected to a national or regional grid;;</p> <p>(c) Charged by a grid that is connected to regional/national grid.</p>  | <p>The project lamps are charged by a renewable energy system that is included as part of the project lamp i.e. solar photovoltaic systems included as a part of the project lamp.</p> <p>This is already incorporated in the following eligibility criteria for inclusion of CPA in the PoA: The technology used under the proposed CPA shall consist of isolated solar LED lighting system</p>  |
| <p>At minimum project lamps shall be certified by their manufacturer to have a rated average life of at least</p> <ul style="list-style-type: none"> <li>• 5,000 hours for Option 1, paragraph 11;</li> <li>• 10,000 hours for Option 2, paragraph 12.</li> </ul> <p>Rated average life is the life certified by the manufacturer or responsible vendor as being the time at which the lamps initial light output will decline by no more than 30%.</p> <p>In addition, for project lamps charged using Option 2(c) as provided for in paragraph 2 above, the manufacturer shall certify that the battery-charging-circuit efficiency of the project lamps, at the time of the purchase, is at least 50%. For project lamps charged under option indicated in paragraph 2(b), if the mini-grid or distributed generation system is not entirely powered by renewable energy generation unit(s), the manufacturer shall certify that the project lamp's battery charging circuit efficiency, at the time of purchase, is at least 50%.</p> | <p>All lamps included in the PoA have a rated average life of at least 5,000 hours (for Option 1) and 10,000 hours (for Option 2).</p> <p>This is already incorporated in the following eligibility criteria for inclusion of CPA in the PoA: The CPA shall apply small-scale methodology AMS.III.AR, version 03 and the solar lamps included in the proposed CPA comply with applicability criteria of methodology AMS-III.AR version 03.</p> <p>The project lamps are charged using Option 2(a). Therefore, this condition is not applicable.</p>   |
| <p>Project Lamps shall have a warranty of a minimum of one year. At a minimum, the warranty shall cover free replacement or repair of any failed lamps, batteries and where applicable solar panels. The warranty shall be provided to end users of the project lamps. In a situation where the project lamps are distributed through intermediaries, the one year warranty shall commence from the time that the project lamps are distributed to end-users.</p>   | <p>All lamps included in the PoA will have a minimum of one year warranty to the end-users, covering cover free replacement or repair of any failed lamps, batteries and where applicable solar panels. Where project lamps are distributed through intermediaries, the one year warranty shall commence from the time that the project lamps are distributed to end-users.</p> <p>This is already incorporated in the following eligibility criteria for inclusion of CPA in the PoA: The CPA shall apply small-scale methodology AMS.III.AR, version 03 and the solar lamps included in the proposed CPA comply with applicability criteria of methodology AMS-III.AR version 03.</p> |

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|   |  |
|---|--|
| <p>Project lamps shall meet or exceed the following minimum performance characteristics, which should be proven by third-party test results:</p> <p>Light Output: luminous flux of 20 lumens or illuminance of 25 lux over an area <math>\geq 0.1</math> m<sup>2</sup> when suspended at a distance of 0.75 meters or self-supported. The light output over a 2,000 hour lumen maintenance test should not decline by more than 20% for Option 1 (paragraph 11) or 15% for Option 2 (paragraph 12);</p> <p>Run Time and Battery Capacity: Daily Burn Time (DBT) shall meet the following requirements: DBT shall be equal to or greater than 3.5 hours; For charging option 2(a) the autonomous time of the project lamps shall meet the following requirements:</p> <p>For Option 1, paragraph 11, the autonomous time shall be equal to or greater than 150% than the DBT of the project lamps;</p> <p>For Option 2, paragraph 12, the autonomous time shall be equal to or greater than 150% of the DBT of the project lamps;</p> <p>For charging options 2(b) and 2(c) the autonomous time of the project lamps shall meet the following requirements:</p> <p>For Option 1, paragraph 11, the autonomous time shall be equal to or greater than 200% of the DBT of the project lamps;</p> <p>For Option 2, paragraph 12, the autonomous time shall be equal to or greater than 200% of the DBT of the project lamps;</p> <p>For charging with solar PV under option 2(a) the Solar Run Time for the project lamp in each month of the year (as determined per paragraph 7(g)) shall be greater than or equal to the DBT;</p> <p>For charging option per 2(b) or 2(c), the project lamp shall be fully charged after eight hours of charging</p> | <p>All lamps included in the PoA will have the following minimum characteristics substantiated by third-party test results:</p> <p>Luminous flux of 20 lumens or illuminance of 25 lux over an area <math>\geq 0.1</math> m<sup>2</sup> when suspended at a distance of 0.75 meters or self-supported. The light output over a 2,000 hour lumen maintenance test shall not decline by more than 20% for Option 1 (paragraph 11) or 15% for Option 2 (paragraph 12);</p> <p>DBT equal to or greater than 3.5 hours;</p> <p>Autonomous time of the project lamps equal to or greater than 150% than the DBT of the project lamps (for Option 1); equal to or greater than 150% of the DBT of the project lamps (for Option 2);</p> <p>The project lamps are charged using Option 2(a). Therefore, this condition is not applicable.</p> <p>Solar Run Time for the project lamp in each month of the year (as determined per paragraph 7(g)) greater than or equal to the DBT;</p> <p>The project lamps are charged using Option 2(a). Therefore, this condition is not applicable.</p> <p>This is already incorporated in the following eligibility criteria for inclusion of CPA in the PoA: The CPA shall apply small-scale methodology AMS.III.AR, version 03 and the solar lamps included in the proposed CPA comply with applicability criteria of methodology AMS-III.AR version 03.</p> |
| <p>Emission reductions can only be claimed for up to five project lamps, distributed through the project activity, per each household or each business location (e.g. for commercial applications such as shops).</p> <p>For projects using Option 1 as per paragraph 11, compliance with this requirement can be demonstrated with documentation of the distribution procedures instead of by ex post recording of lamps distributed in each household. Any lamp distributed to a household or business location beyond the limit of five per location shall not be included in the project boundary, and emission reductions shall not be claimed for such lamps.</p>   | <p>The number of project lamps in a given household shall be recorded at the time of sales. The warranty registration process would be used to collect this information. Project lamps in excess of five in a given household/business location shall be excluded from claiming emission reductions.</p> <p>This is already incorporated in the following eligibility criteria for inclusion of CPA in the PoA: The CPA shall apply small-scale methodology AMS.III.AR, version 03 and the solar lamps included in the proposed CPA comply with applicability criteria of methodology AMS-III.AR version 03.</p>   |



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|   |  |
|---|--|
| Measures are limited to those that result in emissions reductions of less than or equal to 60 kt CO2 equivalent annually. | Each CPA in the PoA shall be capped at a threshold of no more than 60 kt CO2 equivalent annually. This is already incorporated in the following eligibility criteria for inclusion of CPA in the PoA: The total number of all lamps installed under the CPA are limited to those that result in emissions reductions of less than or equal to 60 kt CO2 equivalent annually throughout the crediting period. |
|---|--|

### 3.7.3 Application of a baseline and monitoring methodology of specific CPA

As described in section 3.6.2 above, each specific CPA shall use the approved small-scale methodology AMS-III.AR "Substituting fossil fuel based lighting with LED/CFL lighting systems", version 03 of 20/07/2012 /05/.

| Para No. | Methodology Requirement   | Justifications  |
|----------|---|---|
| 1.       | 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).   | A typical CPA will involve the distribution of a variety of battery-charged solar LED based lighting systems as alternative to fossil fuel based lamps for residential and/or non-residential applications, within the geographical boundary of CPA |
|          | <b>Justification by DOE : Applicable</b><br>The baseline in the project boundary was demonstrated both PoA-DD and CPA-DD, which RINA confirmed after cross checking published documents /41/, /42/.   |   |
| 2.       | This methodology is applicable only to project lamps whose batteries are charged using one of the following options:<br>(a) Charged by renewable energy system included as part of the Project Lamp (e.g. a photovoltaic system or mechanical system such as a hand crank charger);<br>(b) Charged by a standalone distributed generation system (e.g. a diesel generator set) or a mini-grid i.e. that is not connected to a national or regional grid;;<br>(c) Charged by a grid that is connected to regional/national grid. | All project lamps distributed under the project activity are solely charged by renewable energy systems, e.g. photovoltaic systems, as described at section E.2. of PoA-DD  |
|          | <b>Justification by DOE : Applicable</b><br>RINA confirmed the justification after cross checking the technical specifications from the technology supplier /17/ and from the site visit observations.  |   |
| 3.       | At minimum project lamps shall be certified by their manufacturer to have a rated average life of at least <ul style="list-style-type: none"> <li>5,000 hours for Option 1, paragraph 11;</li> <li>10,000 hours for Option 2, paragraph 12.</li> </ul>  | All lamps included in the CPA have a rated average life of at least 5,000 hours (for Option 1) and 10,000 hours (for Option 2).<br><br>The project lamps are charged using Option 2(a). Therefore, this condition is not                            |

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|    | <p>Rated average life is the life certified by the manufacturer or responsible vendor as being the time at which the lamps initial light output will decline by no more than 30%.</p> <p>In addition, for project lamps charged using Option 2(c) as provided for in paragraph 2 above, the manufacturer shall certify that the battery-charging-circuit efficiency of the project lamps, at the time of the purchase, is at least 50%. For project lamps charged under option indicated in paragraph 2(b), if the mini-grid or distributed generation system is not entirely powered by renewable energy generation unit(s), the manufacturer shall certify that the project lamp's battery charging circuit efficiency, at the time of purchase, is at least 50%.</p> | applicable.  |
|    | <p><b>Justification by DOE : Applicable</b></p> <p>RINA confirmed the justification after cross checking the lifetime certificate for SunKing by Lighting Africa /16/, for SunKing Pro by Schatz Energy Research Centre /15/ and for SunKing Solo by Lighting Africa /43/.</p>  |  |
| 4. | <p>Project Lamps shall have a warranty of a minimum of one year. At a minimum, the warranty shall cover free replacement or repair of any failed lamps, batteries and where applicable solar panels. The warranty shall be provided to end users of the project lamps. In a situation where the project lamps are distributed through intermediaries, the one year warranty shall commence from the time that the project lamps are distributed to end-users.</p>   | <p>All lamps included in the PoA will have a minimum of one year warranty to the end-users, covering cover free replacement or repair of any failed lamps, batteries and where applicable solar panels. Where project lamps are distributed through intermediaries, the one year warranty shall commence from the time that the project lamps are distributed to end-users.</p>  |
|    | <p><b>Justification by DOE : Applicable</b></p> <p>RINA confirmed the justification after cross checking the sample and warranty registration form /18/ and further cross checking original warranty form signed with owner of lamp /40/.</p>   |  |
| 5. | <p>Project lamps shall meet or exceed the following minimum performance characteristics, which should be proven by third-party test results:</p> <p>(a) Light Output: luminous flux of 20 lumens or illuminance of 25 lux over an area <math>\geq 0.1 \text{ m}^2</math> when suspended at a distance of 0.75 meters or self-supported. The light output over a 2,000 hour lumen maintenance test</p>   | <p>All lamps included in the PoA will have the following minimum characteristics substantiated by third-party test results:</p> <p>(a) Luminous flux of 20 lumens or illuminance of 25 lux over an area <math>\geq 0.1 \text{ m}^2</math> when suspended at a distance of 0.75 meters or self-supported. The light output over a 2,000 hour lumen maintenance test shall not decline by more than 20% for Option 1 (paragraph 11) or 15% for Option 2 (paragraph 12);</p> <p>(b)</p> |

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|  | <p>should not decline by more than 20% for Option 1 (paragraph 11) or 15% for Option 2 (paragraph 12);</p> <p>(b) Run Time and Battery Capacity: Daily Burn Time (DBT) shall meet the following requirements:</p> <p>(i) DBT shall be equal to or greater than 3.5 hours;</p> <p>(ii) For charging option 2(a) the autonomous time of the project lamps shall meet the following requirements:</p> <p>a. For Option 1, paragraph 11, the autonomous time shall be equal to or greater than 150% than the DBT of the project lamps;</p> <p>b. For Option 2, paragraph 12, the autonomous time shall be equal to or greater than 150% of the DBT of the project lamps;</p> <p>(iii) For charging options 2(b) and 2(c) the autonomous time of the project lamps shall meet the following requirements:</p> <p>a. For Option 1, paragraph 11, the autonomous time shall be equal to or greater than 200% of the DBT of the project lamps;</p> <p>b. For Option 2, paragraph 12, the autonomous time shall be equal to or greater than 200% of the DBT of the project lamps;</p> | <p>(i) DBT equal to or greater than 3.5 hours;</p> <p>(ii) Autonomous time of the project lamps equal to or greater than 150% than the DBT of the project lamps (for Option 1); equal to or greater than 150% of the DBT of the project lamps (for Option 2);</p> <p>(iii) The project lamps are charged using Option 2(a). Therefore, this condition is not applicable.</p> <p>(iv) Solar Run Time for the project lamp in each month of the year (as determined per paragraph 7(g)) greater than or equal to the DBT;</p> <p>The project lamps are charged using Option 2(a). Therefore, this condition is not applicable.</p> |
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|    | <p>(iv) For charging with solar PV under option 2(a) the Solar Run Time for the project lamp in each month of the year (as determined per paragraph 7(g)) shall be greater than or equal to the DBT;</p> <p>(v) For charging option per 2(b) or 2(c), the project lamp shall be fully charged after eight hours of charging</p>   |  |
|    | <p><b>Justification by DOE : Applicable</b></p> <p>RINA confirmed the minimum performance characteristics of project lamp after cross checking the lifetime certificate for SunKing by Lighting Africa <b>/16/</b>, for SunKing Pro by Schatz Energy Research Centre <b>/15/</b>, for SunKing Solo by Lighting Africa <b>/43/</b> and technical specifications from technology supplier <b>/17/</b>.</p>  |  |
| 6. | <p>The project design document shall explain the proposed distribution method of the project lamps. It shall also explain how the proposed project activity will:</p> <p>a) Ensure that the replaced baseline lamps are those that directly consume fossil fuel. This can be done through 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) that demonstrates that fossil fuel is a commonly used fuel for lighting;</p> <p>b) Eliminate potential double counting of emission reductions that could occur, for example, if more than one entity (e.g. lamp manufacturers, suppliers of solar and/or battery equipment, etc.) claims credit for emission reductions for the project lamps. At a minimum, project lamps shall be marked as CDM project lamps;</p> <p>c) Ensure compliance with prevailing regulations pertaining to the use and</p> | <p>Each CPA will be executed by individual CPA Implementers (CPAI) who will be responsible for the distribution of solar lamps as well as setting up of data collection and monitoring systems in accordance with the registered monitoring plan. The CPAI shall transfer sales information as well as monitoring survey results (in case of Option 2 only) at regular intervals to CME electronically/hard copy. Detailed description has been presented in section A.4.4.1 of the PoA-DD.</p> <p>(a) The PoA will cover only those states/districts in India where the commonly used fuel is demonstrated to be fossil fuel. In case of the first CPA the project boundary cover states of Uttar Pradesh, Bihar, Jharkhand, Odisha and Assam where the % of households using kerosene as primary source of lighting in each of these individual states can be deemed as common practice with an overall ~66% households using kerosene as primary source of lighting. This is as per the recent 'Census of India 2011' <b>/42/</b>.</p> <p>(b) Each project lamp shall be marked with a serial number on its body as well as, disclaimer on warranty card which transfers the right to all emission reductions resulting from the use of the product to the CPA implementer. Hence, each lamps cab</p> |

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|    | disposal of batteries.   | <p>be traced with the serial number. This has been checked during site visit by the validation team. Hence, it ensures that no double counting occurs in the project activity.</p> <p>(c) As per Ministry of Environment and Forests, Government of India Batteries (Management and Handling) Rules, 2001, the disposal regulations are limited to lead acid batteries only <b>/44/</b>. At present there is no regulation in host country with respect to disposal of Li<sup>+</sup> batteries. Hence, the programme complies with the prevailing regulation.</p> |
|    | <p><b>Justification by DOE : Applicable</b></p> <p>RINA confirmed the justification of the first CPA from site visit observation, from published literature <b>/42/</b> and prevailing regulation for disposal of batteries <b>/44/</b>.</p>   |  |
| 7. | <p>The project design document shall include the minimum requirements for the design specifications of project lamps including the following specifications:</p> <ul style="list-style-type: none"> <li>a) Lamp wattage (in Watts) and luminous flux output (in lumens);</li> <li>b) Rated lamp life (in hours);</li> <li>c) Where applicable, the type and rated capacity of the renewable energy equipment used for battery-charging (in Watts);</li> <li>d) Type (e.g. NiMH, Lead-Acid, Li-ion), and rated capacity of the batteries (in Ampere hours);</li> <li>e) Type of charge controller (e.g. active or passive);</li> <li>f) Autonomous time and DBT;</li> <li>g) Solar Run Times(s) (SRT) for products with solar energy charging systems. If regional solar data are available, the maximum, minimum and average estimated SRT values for each month of a typical year shall be provided. If regional solar data are not available the standard solar day (5 kWh/m<sup>2</sup>) shall be used to estimate SRT;</li> <li>h) Where applicable, the amount of time to fully charge the product using mechanical means or a centralized</li> </ul> | <p>Each CPA in the PoA will specify the design specifications as required by the methodology. The first CPA includes in section A.4 the designed specification in line with the methodology.</p>   |

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|    | charging system (e.g. the national grid);<br>i) Physical protection against environmental factors (e.g. rain, heat, insect ingress).  |   |
|    | <b>Justification by DOE : Applicable</b><br>RINA confirmed the design specification of the project lamp in the CPA after cross checking the lifetime certificate for SunKing by Lighting Africa <b>/16/</b> , for SunKing Pro by Schatz Energy Research Centre <b>/15/</b> , for SunKing Solo by Lighting Africa <b>/43/</b> and technical specifications from technology supplier <b>/17/</b> .  |   |
| 8. | Emission reductions can only be claimed for up to five project lamps, distributed through the project activity, per each household or each business location (e.g. for commercial applications such as shops). For projects using Option 1 as per paragraph 11, compliance with this requirement can be demonstrated with documentation of the distribution procedures instead of by ex post recording of lamps distributed in each household. Any lamp distributed to a household or business location beyond the limit of five per location shall not be included in the project boundary, and emission reductions shall not be claimed for such lamps.   | The number of project lamps in a given household shall be recorded at the time of sales. The warranty registration process would be used to collect this information. Project lamps in excess of five in a given household/business location shall be excluded from claiming emission reductions. |
|    | <b>Justification by DOE : Applicable</b><br>Each CPA implementer shall record the end user details from which it can be traced if any user having more than 5 project lamps. In that case the any lamp excess of 5 in a given household or business location shall be excluded from claiming emission reductions.   |   |
| 9. | Measures are limited to those that result in emissions reductions of less than or equal to 60 kt CO <sub>2</sub> equivalent annually  | According to the PDD, the claimed emission reductions will be capped at 60 ktCO <sub>2</sub> equivalent annually.   |
|    | <b>Justification by DOE : Applicable</b><br>Additionality of individual CPA is justified in line with the 'Guideline on the demonstration of additionality of small-scale project activity', Version 09 <b>/37/</b> . The threshold limit of emission reductions under the guideline is 60 ktCO <sub>2</sub> e annually. As per the applied methodology AMS-III.AR, version 03, the default emission factor per lamp is 0.092 tCO <sub>2</sub> e per year <b>/05/</b> . Hence, each CPA can only include operational project lamps up to a maximum of 652,173 numbers. The specific CPA limits the number of operational lamps to a maximum of 652,150 operational lamps per year and hence is in compliance with the 'Guideline on the demonstration of additionality of small-scale project activity', Version 09 <b>/37/</b> . |   |

### 3.7.4 Project activity eligibility / Debundling

In accordance with paragraph 10 of Annex 13 to the EB 54, Guidance for determining the occurrence of de-bundling under a Programme of Activities (PoA), if each independent subsystem/ measures included in the CPA of a PoA is no larger than 1% of the small scale threshold defined by the

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methodology applied, then that CPA of PoA is exempted from performing de-bundling check, i.e. considered as not being a de-bundled component of a large scale activity. The threshold defined by the applied methodology AMS-III.AR, version 03 is 60 kt CO<sub>2</sub> equivalent annually /05/. Each project lamp results in emission reduction of 0.092 tCO<sub>2</sub>e per year (as per paragraph 13 &14, AMS.III.AR, version 03) /05/, which is less than 1% of 60 kt CO<sub>2</sub>e. Hence, the program is exempted from carrying out a de-bundling check.

### 3.8 Physical / Geographical boundary

#### 3.8.1 Physical / Geographical boundary of the PoA

By checking the information and evidences available /01/, /14/, /34/ RINA determinates that, in establishing the boundary of the PoA, the project participants have taken into consideration all applicable national and/or sectoral policies and regulations within that chosen boundary. Use of solar PV lighting system is not mandatory in India by any law, policy or regulation. Even for power generation, the Electricity Act 2003 (Government of India) (<http://www.cercind.gov.in/08022007/Act-with-amendment.pdf>) does not restrict or empower any authority to restrict the fuel choice.

#### 3.8.2 Physical / Geographical boundary – Sources and GHGs of the generic CPA

According to the approved baseline and monitoring methodology “AMS-III.AR”, “Substituting fossil fuel based lighting with LED/CFL lighting systems”, version 03 of 20/07/2012 /05/ the project boundary of the CPA /02/ includes the project lamps as well as the charging systems, ie. In case of project lamps is the physical, geographical site where each project lamp is utilized. In addition, since the lamps are charged by a renewable energy system then the project boundary includes the physical, geographical site of the renewable energy system. Therefore, for the proposed CPA, the project boundary includes all the sites where the project lamps are sold. Moreover, the geographical boundary of CPA shall be limited to that where it shall ensure that the replaced baseline lamps are those that directly consume fossil fuel. This may be demonstrated through documentation of the common practice of fuel usage for lighting within the CPA boundary (e.g. based on representative sample surveys, official data or peer reviewed literature) that demonstrates that fossil fuel is a commonly used fuel for lighting representing/21/22/24/ at-least 50 % of the households consume fossil fuel (kerosene) within the project boundary. This is in line with paragraph 6(a) of AMS-III.AR, version 03 /05/. /. The CPA boundary shall be determined at CPA level individually.

Emissions sources included in the project boundary are shown in the table below:

|                    | GHGs involved   | Description   |
|--------------------|-----------------|---|
| Baseline emissions | CO <sub>2</sub> | CO <sub>2</sub> emissions from baseline lamps fuel consumption are considered in the project boundary. This is in line with the methodology /05/. |
| Project emissions  | NA              | Not applicable in line with the methodology /05/.   |
| Leakage            | NA              | Not applicable in line with the methodology /05/.   |

Emission sources which are not addressed by the applied methodology and which are expected to contribute more than 1% of the overall expected average annual emissions reduction have not been identified.

RINA can confirm that all the emission sources and gases have been included in the project boundary and the description in the CPA-DD is accurate and complete, and also that the selected sources and gases are justified for the proposed project activity.

#### 3.8.3 Physical / Geographical boundary – Sources and GHGs of the Specific CPA

Please refer to section 3.7.2 above. The specific CPA covers the geographical boundary of Uttar Pradesh, Bihar, Jharkhand, Odisha and Assam where the commonly used fuel for lighting in households is around 66% on kerosene (fossil fuel) as per Indian Govt. Report /42/. The validation

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team has cross checked the publicly available latest Indian Census Report which justifies that individual states (Uttar Pradesh (61.9%), Bihar (82.4%), Jharkhand (53.1%), Odisha (55.3%) and Assam (61.8%) represents kerosene consumption in households for lighting purpose is more than 50% and overall around 66% in the CPA boundary /42/. The physical boundary of the CPA follows the same as discussed in generic CPA-DD.

It is to be noted that the validation site visit was done only in Bihar (one of the states where the first CPA is being implemented) where project lamp sales were taking place during that period. Sales in other states were not taking place during that period and hence site visit in remaining states could not be carried out. The total number of sales shall be cross checked during first verification of the CPA (FAR2). As per discussion with the CPA implementer (Greenlight Planet India Pvt. Ltd.) the total number of project lamps (652,150) included in the first CPA is expected to be completed approximately by end of the year 2014. Since at the time of site visit only 30,640 numbers of project lamps were sold and the sample size (random sampling) for the same population comes to 68 number of project lamp /59/; however, the validation team visit 88 numbers of end users in the state of Bihar in different districts as discussed in section 2.2 above.

### 3.9 Additionality

#### 3.9.1 Eligibility criteria

As for the assessment in the table below, RINA confirms that the eligibility criteria for inclusion of a CPA in the PoA are in accordance with the Standard for demonstration of additionality, development of eligibility criteria and application of the methodology for programme of activities /48/ and PoA-DD version 04 of 29/11/2012 /01/. Moreover RINA confirms that generic CPA(s) /02/ and specific CPA /03/ meet these minimum eligibility criteria. The eligibility criteria are confirmed at the CPA level before to inclusion.

|  | Do the eligibility Criteria cover as minimum the following?  | Does the generic CPA(s) meet the eligibility criteria?             | Does the Specific CPA(s) meets eligibility criteria?  |
|--|--|--|---|
| (a) The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA; | Yes. This has been put as eligibility criteria for CPAs in the PoA. The PoA boundary is defined as political boundary of India CPA participating in the PoA shall be within the political boundary of India. Moreover, the CPA shall ensure that the replaced baseline lamps are those that directly consume fossil fuel. This may be demonstrated through documentation of the common practice of fuel usage for lighting within the CPA boundary (e.g. based on representative sample surveys, | Yes; the generic CPA considers the specified eligibility criteria. | Yes; the specific CPA project boundary covers the states of Uttar Pradesh, Bihar, Jharkhand, Odisha and Assam which are within the political boundary of India. Moreover in each state the commonly used fuel for lighting in households is kerosene (~66%) which is as per Indian Govt. report /42/. Hence, applicability criteria is justified. |

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|  | official data or peer reviewed literature) that demonstrates that fossil fuel is a commonly used fuel for lighting and for this purpose common practice of fuel usage for lighting is deemed as fossil fuel usage in atleast 50 % of the households at the state(s) level (or districts' level as a secondary alternative) in India. |  |   |
| (b) Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);              | Yes; each project lamp in the PoA shall have a unique serial number with logo of the CPA implementer and provision of transfer of emission reduction rights from the user to the CPA implementer.  | Yes; the generic CPA considers the specified eligibility criteria. | Yes; the specific CPA has been implemented by Greenlight Planet India Private Limited (GLP) wherein each project lamp is marked with a unique serial number as well as, disclaimer on warranty card which transfers the right to all emission reductions resulting from the use of the product to GLP. This is evident from the customer registration form /40/ and from the site visit observation by the validation team. |
| (c) The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications; | Yes; the project lamps in each CPA shall comply with the required technical specifications specified in the methodology AMS-III.AR, version 03   | Yes; the generic CPA considers the specified eligibility criteria. | Yes; the specific CPA included three type of solar lamps (SunKing, SunKing Pro and SunKing Solo) manufactured by Greenlight Planet India Private Limited. the technical specifications as per the methodology has been cross checked with the the lifetime certificate for SunKing by Lighting Africa /16/, for   |



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|  |  |  | SunKing Pro by Schatz Energy Research Centre /15/, for SunKing Solo by Lighting Africa test report /43/ and technical specifications from technology supplier /17/ and found acceptable by the validation team.   |
| (d) Conditions to check the start date of the CPA through documentary evidence;  | Yes; start date of each CPA shall not be prior to the start date of validation of the PoA. The CPA start date shall be the date of sale of first CDM eligible lamp under the CPA and shall be checked with documentary evidence.   | Yes; the generic CPA considers the specified eligibility criteria. | Yes; the specific CPA start date is 01/01/2012 which is the date of selling the first solar powered lamp in the programme /40/ and is after the start date of the PoA on 14/10/2011 (date of publication of the PoA-DD for GSC). This is in line with the latest version of glossary of CDM terms /39/ and hence accepted by the validation team. |
| (e) Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs; | Yes; the PoA shall only apply single small-scale methodology AMS-III.AR, version 03 /05/. Any CPA in the PoA has to comply with the conditions of the applied methodology AMS-III.AR, version 03.  | Yes; the generic CPA considers the specified eligibility criteria. | The specific CPA "Greenlight Solar PV Lighting India "CPA 01"" meets all applicability conditions of AMS-III.AR, version 03 and this has been discussed in section 3.6.2 of this report.  |
| (f) The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality;                     | Yes; the each CPA under the PoA is deemed additional under the "Guideline on the demonstration of additionality of small-scale project activity, Version 09" /37/, and hence ensure to limit the project lamps which results emission reduction upto maximum of 60kt CO2 equivalent in a year. | Yes; the generic CPA considers the specified eligibility criteria. | Yes; the specific CPA "Greenlight Solar PV Lighting India "CPA 01"" includes project lamp upto maximum of 652,150 which results emission reduction less than 60kt CO2 equivalent in a year. Hence, applicability condition is justified. However, since the entire project lamps are yet to be installed, the                                     |

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|  |   |  | total number of lamps in the CPA shall be cross checked during the first verification of the CPA (FAR 2).   |
| (g) The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;             | Local stakeholder consultation is done at PoA level and environmental impact analysis is not required as per host country regulation /27/. Hence, not required as eligibility criteria for CPA inclusion. | Not Applicable.  | Not Applicable.   |
| (h) Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance;                                 | Yes; the CME shall check whether the CPA involves ODA. This may be checked through an authorized confirmation / statement from CPAI.  | Yes; the generic CPA considers the specified eligibility criteria.   | Yes; the specific CPA "Greenlight Solar PV Lighting India "CPA 01" does not involve any ODA which has been confirmed from the statement letter from the CPA implementer /45/.                                     |
| (i) Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, gridconnected/ off-grid) and distribution mechanisms (e.g. direct installation);                 | Yes; each CPA shall target end user to be households/communities/SMEs. The CME shall cross check the target group before inclusion in the PoA.  | Yes; the generic CPA considers the specified eligibility criteria.   | Yes; the specific CPA "Greenlight Solar PV Lighting India "CPA 01" targets end users i.e. households/commercials which shall be tracked with unique serial number and end user details against each project lamp. |
| (j) Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys; | Yes; CPAs can use sampling plan in line with the applied methodology AMS-III.AR, version 03 for verification.   | Yes; the generic CPA considers the specified eligibility criteria. In line with the methodology if any CPA opts for option 2 of the methodology a reliable sampling plan as mentioned in Annex 4 of the generic CPA-DD in accordance with Standard for sampling and surveys for CDM project activities and programme of activities /08/. | The specific CPA does not opt for option 2 of the methodology and hence sampling is not followed in the specific CPA. This is in line with the methodology.   |
| (k) Where applicable, the conditions that ensure that  | Yes; each CPA in the PoA shall meet the   | Yes; the generic CPA considers the specified   | Yes; the specific CPA "Greenlight   |



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| every CPA in aggregate meets the small-scale or microscale threshold criteria and remains within those thresholds throughout the crediting period of the CPA; | small-scale threshold criteria and thus remains within the threshold throughout the crediting period.  | eligibility criteria. Each CPA shall be limited to the maximum number of operational lamps that can be included in the CPA at any given time is 652,173. Therefore, the CPA results in emissions reductions of a maximum of 60 kt CO <sub>2</sub> which is as per the "Guidelines on the Demonstration of Additionality of Small-Scale Project Activities", version 09. | Solar PV Lighting India "CPA 01" includes project lamp upto maximum of 652,150 which results emission reduction less than 60kt CO <sub>2</sub> equivalent in a year. Hence, applicability condition is justified. However, since the entire project lamps are yet to be installed, the total number of lamps in the CPA shall be cross checked during the first verification of the CPA (FAR 2). |
| (l) Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories.                   | This is not applicable as each unit shall always contribute to less than 1% of the small scale methodology AMS III.AR, version 03 threshold as explained in section A.4.4.1 of the PoA-DD /01/ | Not Applicable as explained in section A.4.6 /02/   | Not Applicable in section A.4.6 /02/   |

Thus, RINA confirms the following:

- The eligibility criteria are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA.
- The description of eligibility criteria in the PoA-DD and the generic CPA-DD are consistent, and the generic CPA-DD is valid to be used for inclusion of a CPA after registration of the PoA in the future

### 3.9.2 Identification of the baseline scenario for each generic CPA

The baseline scenario is generic CPA is defined in line with paragraph 6(a) of the methodology which states "that the replaced baseline lamps are those that directly consume fossil fuel. This can be done through 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) that demonstrates that fossil fuel is a commonly used fuel for lighting" /05/.

As per latest Census of India 2011 report it is evident that kerosene is one of the most widely used fossil fuel for lighting in India and around 72 million rural households in India depend upon kerosene as their primary source of lighting and about a third of the total households have no access to electricity /42/. As per National Sample Survey Organisation Report (March 2010), Ministry of Statistics and Programme Implementation, Government of India 61.4 million rural households (39% of total rural households) and 3.2 million urban households (6% of total urban households) still depend on kerosene for meeting lighting needs /41/. Even in urban areas, ~5 million of household depend upon kerosene as their primary fuel for lighting /42/.

As per The World Bank, India's average annual per capita electricity consumption, is estimated to be around 700 kWh, and is recognized to be amongst the world's lowest/46/. As per International Energy Agency (IEA), World Energy Outlook 2011, Electricity Access Database, around 288.8 million people in India do not have access to electricity /47/.

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Hence, it is evident that kerosene is the commonly used fossil fuel in India for lighting. However, given the fact that some of the states or regions in India kerosene is not dominant and not used as source of lighting /42/, each CPA boundary is to be determined at CPA level and the baseline for each CPA shall be established as per the following eligibility criteria for inclusion of CPA in the PoA in line with para 6(a) of methodology /05/:

The CPA shall ensure that the replaced baseline lamps are those that directly consume fossil fuel. This may be demonstrated through documentation of the common practice of fuel usage for lighting within the CPA boundary (e.g. based on representative sample surveys, official data or peer reviewed literature) that demonstrates that fossil fuel is a commonly used fuel for lighting (within the CPA boundary) representing at-least 50 % of the households consume fossil fuel (kerosene) within the project boundary.

### 3.9.3 Identification of the baseline scenario for the specific CPA

As described in section E.4 of the PoA-DD, the baseline is identified in line with paragraph 6(a) of the methodology /05/ and the same shall be followed in all CPAs. The specific CPA “Greenlight Solar PV Lighting India “CPA 01’ covers the project boundary as the political boundary of Uttar Pradesh, Bihar, Jharkhan, Odisha and Assam where the share of Kerosene is the most commonly used fuel for lighting within the aforesaid CPA boundary as substantiated through Indian Census data 2011 /42/. Around 66% households in the CPA boundary uses kerosene as primary fuel for lighting. The validation team has cross checked the publicly available latest Indian Census Report which justifies those individual states (Uttar Pradesh (61.9%), Bihar (82.4%), Jharkhand (53.1%), Odisha (55.3%) and Assam (61.8%) represents kerosene consumption in households for lighting purpose is more than 50% /42/. Hence, RINA confirms that:

- All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;

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

The additionality is demonstrated at PoA level. The additionality of the proposed project activity is demonstrated by applying ‘Guideline on the demonstration of additionality of small-scale project activity’, Version 09 /37/ and in line with the guidelines the PoA is deemed as automatically additional following paragraph 2(c) of the guideline which states “project activities solely composed of isolated units where the users of the technology/measure are households or communities or Small and Medium Enterprises (SMEs) and where the size (That is the size of each unit under 750 kW installed capacity or under 3000 MWh of energy savings per year or 3000 tonnes of emission reductions per year) of each unit is no larger than 5% of the small-scale CDM thresholds” /37/. The threshold emission reduction of the applied methodology AMS-III.AR, version 03 is 60ktCO<sub>2</sub>e per year and the PoA comprises of CPAs and each CPA consist of solar lamps which results in emission reduction of 0.092 tCO<sub>2</sub>e per year per lamp as per paragraph 13 of the methodology/05/. Hence, individual system represents less than 1% of the threshold. Hence, the PoA is considered automatically additional. It is RINA’s opinion that the proposed PoA activity is additional, i.e. it is able to reduce anthropogenic emissions of greenhouse gases by sources below those that would have occurred in the absence of the PoA. The demonstration of additionality for a CPA shall be demonstrated through compliance with eligibility criteria for inclusion of a CPA in the PoA as mentioned in section A.4.3 and E.5.2 of the PoA-DD/01/.

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## 3.9.5 Investment analysis

Investment analysis is not applicable for the PoA since the additionality of the PoA is demonstrated in line with the “Guideline on the demonstration of additionality of small-scale project activity”, Version 09 /37/ and the PoA is deemed automatically additional following paragraph 2(c) of the guideline /37/.

## 3.9.6 Barrier analysis

As explained in section 3.8.4 of the report, barrier analysis is not required to demonstrate since the project falls under the automatic additional project category as under paragraph 2(c) of the guideline /37/.

## 3.9.7 Common practice analysis

Common practice analysis is also not required to demonstrate since the project additionality is discussed as per “Guideline on the demonstration of additionality of small-scale project activity”, Version 09 /37/.

## 3.9.8 Conclusion

RINA can confirm that all data, rationales, assumptions, justifications and documentation provided by the project participants to support demonstration of additionality are credible and reliable. By assessing the evidences presented /17/, /18/ and cross-checking the information contained in the PoA-DD /01/, CPA-DD /03/, RINA considers the reasonings for the proposed project additionality demonstration is credible and reasonable i.e. the proposed project has the ability to reduce anthropogenic emissions of greenhouse gases by sources below those that would have occurred in the absence of the registered CDM project activity.

## 3.10 Management system of the PoA

RINA confirms that the management system described in the PoA design document (CDM-PoA-DD) /01/ in accordance with the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities, version 01 /48/ / and the CME can ensure that the CPAs meet the eligibility criteria for inclusion of CPA in the PoA. . EIPL will be the coordinating/ managing entity (CME) of the proposed program. Each CPA will be executed by individual CPA Implementers (CPAI) who will be responsible for the distribution of solar lamps as well as setting up of data collection and monitoring systems in accordance with the registered monitoring plan. The CPAI shall transfer sales information and other associated monitoring data at regular intervals to CME electronically/hard copy. Each CPA will be assigned a unique title/name by the CME. RINA confirms that appropriate provisions have been introduced in the PoA-DD/01/, sections A.4.2, A.4.4.1 and A.4.4.2 to ensure that management system of the PoA details roles and responsibility for operation and monitoring activities in the PoA and is sufficient to ensure transparent data collection, avoidance of double counting, avoidance of any CPA that is de-bundled component of another project to get included in the PoA and ensuring that CPAIs are aware of their activity to be a part of the subject PoA in line with the aforesaid standards.

## 3.11 Estimation of GHG emission reductions

### 3.11.1 Estimation of emission reduction of a generic CPA

#### Baseline emissions:

Baseline emissions ( $BE_{y}$ ) per project lamp per year for a CPA are calculated as per equation 2 & 3 of AMS-III.AR version 03 /05/.

$$DV = FUR \times O \times U \times EF / 1000 \times LF \times n \times NTG$$

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And

$$BE_y = DV \times GF_y \times DB_y$$

Where,

- DV = Lamp Emission Factor (default is 0.092 tCO<sub>2</sub>e per project lamp) /05/;
- FUR = Fuel use rate (0.03 liters/hour) /05/;
- O = Utilization rate (3.5 hours/day) /05/;
- U = Annual utilization (365 days/year) /05/.
- EF = Fuel emission factor (2.4 kgCO<sub>2</sub>/liter) /05/.
- LF = Leakage factor (2.4 kgCO<sub>2</sub>/liter) /05/.
- n = Number of fuel based lamps replaced per project lamp (1) /05/.
- NTG = Net-to-gross adjustment factor (1.0) /05/.
- GF<sub>y</sub> = Grid factor in year y (Equal to 1.0 when charging option defined in paragraph 2(a) is used) /05/.
- DB<sub>y</sub> = Dynamic baseline factor (change in baseline fuel, fuel use rate, and/or utilization during crediting period) in year y. Default value of 1 in the absence of relevant information /05/.

### Project emissions:

In line with the applied methodology AMS-III.AR, version 03 there are no project emissions (PE<sub>y</sub> = 0) if the project lamp charging mechanism utilized is defined in (a) paragraph 2(a); or (b) paragraph 2(b) if the minigrid distributed generation system is entirely powered by renewable energy generation unit(s). Since in the PoA project lamps charging mechanism utilizes renewable energy system (photovoltaic system) hence PE<sub>y</sub> is assumed to be zero.

### Leakage:

No leakage calculation is required as per the applied methodology AMS-III.AR, version 03. Hence, L<sub>y</sub> is assumed to be zero for the PoA.

### Emission Reductions:

In line with equation 5 of the applied methodology AMS-III.AR, version 03, Emission Reductions (ER<sub>y</sub>) for a CPA shall be calculated according to the following formula:

$$ER_y = \sum N_{i,j} \times (BE_{y,i} - PE_{y,i,j}) \times OF_{y,i,j}$$

Where,

- N<sub>i,j</sub> = Number of project lamps distributed to end users of type *i* with charging method *j*
- OF<sub>y,i,j</sub> = 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 be equal to 100% for years 1, 2 and 3, and equal to the value determined in paragraph 22 (of AMS-III.AR, version 03) for years 4, 5, 6 and 7.
- BE<sub>y,i</sub> = Baseline emissions of project lamp of type *i* in the year *y* (tCO<sub>2</sub>e)
- PE<sub>y,i</sub> = Project Emissions of the CPA in year *y* (tCO<sub>2</sub>e) per lamp

A proposed CPA uses either of the two options as discussed below in line with the applied methodology /05/:

1. **Option 1 as per paragraph 11 of AMS. III. AR** (Project lamps are assumed to operate for two years after distribution to end-users. Therefore, under this option, emission reductions may only be claimed for two years)

In this case, OF<sub>y,i,j</sub> shall be 100% for year 1 and 2 in line with the methodology AMS-III.AR, version 03 /05/.

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2. **Option 2 as per paragraph 12 of AMS. III. AR** (Project lamps are assumed to operate for up to seven years after distribution to end-users, and thus emission reductions can be claimed for up to seven years per project lamp)

In case of option 2 above,  $OF_{y,ij}$  shall be 100% for year 1, 2 and 3 and monitored for operational year 4,5,6 and 7<sup>th</sup> year in line with paragraph 22 of the methodology AMS-III.AR, version 03 /05/. The CPA implementer shall follow monitoring surveys to determine percentage of project lamps distributed to end-users that are operating and in service a per sampling plan detailed in Annex-4 of the Generic CPA-DD /02/. The sampling size shall be determined by minimum 90% confidence interval and the 10% maximum error margin; and the size of the sample shall be no less than 100. This is in line with the methodology and hence accepted by the validation team.

### 3.11.2 Estimation of emission reduction of a specific CPA

#### Baseline emissions:

Baseline emissions ( $BE_y$ ) per project lamp per year for a CPA are calculated as per equation 2 & 3 of AMS-III.AR version 03 /05/.

$$DV = FUR \times O \times U \times EF / 1000 \times LF \times n \times NTG$$

And

$$BE_y = DV \times GF_y \times DB_y$$

Where,

- DV = Lamp Emission Factor (default is 0.092 tCO<sub>2</sub>e per project lamp) /05/;
- FUR = Fuel use rate (0.03 liters/hour) /05/;
- O = Utilization rate (3.5 hours/day) /05/;
- U = Annual utilization (365 days/year) /05/.
- EF = Fuel emission factor (2.4 kgCO<sub>2</sub>/liter) /05/.
- LF = Leakage factor (2.4 kgCO<sub>2</sub>/liter) /05/.
- n = Number of fuel based lamps replaced per project lamp (1) /05/.
- NTG = Net-to-gross adjustment factor (1.0) /05/.
- GF<sub>y</sub> = Grid factor in year y (Equal to 1.0 when charging option defined in paragraph 2(a) is used) /05/.

DB<sub>y</sub> = Dynamic baseline factor (change in baseline fuel, fuel use rate, and/or utilization during crediting period) in year y. Default value of 1 in the absence of relevant information /05/.

#### Project emissions:

In line with the applied methodology AMS-III.AR, version 03 there are no project emissions ( $PE_y = 0$ ) if the project lamp charging mechanism utilized is defined in (a) paragraph 2(a); or (b) paragraph 2(b) if the minigrid distributed generation system is entirely powered by renewable energy generation unit(s). Since in the specific CPA project lamps charging mechanism utilizes renewable energy system (photovoltaic system) which is confirmed from the technical specifications of the lamps /17/; hence  $PE_y$  is assumed to be zero for the CPA and accepted by the validation team.

#### Leakage:

No leakage calculation is required as per the applied methodology AMS-III.AR, version 03. Hence, leakage emissions are assumed to be zero for the CPA and accepted by the validation team.

#### Emission Reductions:

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In line with equation 5 of the applied methodology AMS-III.AR, version 03, Emission Reductions (ERY) for a CPA shall be calculated according to the following formula:

$$ERY = \sum N_{i,j} \times (BE_{y,i} - PE_{y,i,j}) \times OF_{y,i,j}$$

Where,

- $N_{i,j}$  = Number of project lamps distributed to end users of type  $i$  with charging method  $j$
- $OF_{y,i,j}$  = 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 be equal to 100% for years 1, 2 and 3, and equal to the value determined in paragraph 22 (of AMS-III.AR, version 03) for years 4, 5, 6 and 7.
- $BE_{y,i}$  = Baseline emissions of project lamp of type  $i$  in the year  $y$  (tCO<sub>2</sub>e)
- $PE_{y,i}$  = Project Emissions of the CPA in year  $y$  (tCO<sub>2</sub>e) per lamp

In line with the discussions in section 3.10.1 above, the specific CPA shall follow option 1 which means the project lamps are assumed to operate for two years after distribution to end-users. Therefore, under this option, emission reductions may only be claimed for two years and  $OF_{y,i,j}$  shall be 100% for year 1 and 2 in line with the methodology AMS-III.AR, version 03 /05/.

The specific CPA covers a maximum number of 652,150 project lamps and hence, the ex-ante emission reductions are estimated to annual average be 56,397 tCO<sub>2</sub>e per year. RINA confirms that all assumptions and data used by the project participants are listed in the PDD, including their references and sources; all documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD; all values used in the PDD are considered reasonable in the context of the proposed CDM project activity; the baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions; all estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

### 3.12 Monitoring Plan

The approved baseline and monitoring methodology “AMS-III.AR” “Substituting fossil fuel based lighting with LED lighting systems”, version 03 /05/ has been applied.

The monitoring plan of generic CPA and of the specific CPA) included in the PoA are in accordance with the monitoring methodology; the monitoring plan will give opportunity for real measurement of achieved emission reductions.

RINA has checked all the parameters presented in the monitoring plan against the requirements of the methodology; no deviations relevant to the project activity have been found in the plan.

RINA confirms that the monitoring arrangements described in the monitoring plan(s) are feasible within the project design, and the means of implementation of the monitoring plan are sufficient to ensure the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.

### Parameters determined ex-ante

The ex-ante parameters that are mentioned in the methodology are included in the PoA-DD and are provided in compliance with the methodology:

- Lamp Emission factor (DV): 0.092 tCO<sub>2</sub>e per project lamp
- Fuel use rate (FUR) (liters/hour): 0.03 liters/hour;
- Utilization rate (O) (hours/day): 3.5 hours per day;
- Annual Utilization (U) (days/year): 365 days per year;
- Fuel emissions factor (EF): 2.4 kgCO<sub>2</sub>/liter;



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- Leakage factor (LF): 1.0;
- Number of fuel-based lamps replaced per project lamp (n): 1.0;
- Net-to-Gross factor (NTG): 1.0.
- Grid Emission Factor (GF): 1.0
- Dynamic Baseline Factor (DBY): 1.0

All above parameters and values are in line with the applied methodology AMS-III.AR, version 03/05/ and correctly applied in the PoA.

### Parameters monitored ex-post

The ex-post parameters that are mentioned in the methodology are included in the PDD and are provided in compliance with the methodology, and they will be monitored during the crediting period:

- Number of project lamps distributed to end-users of type  $i$  with charging method  $j$  in CPA in year  $y$  ( $N_{y,i,j}$ ): The CPA implementer maintains the records of individual end user against each project lamp and provide the same to the CME.
- Percentage of project lamps distributed to end-users that are operating an in service in year  $y$ , for each lamp type  $i$  and charging method  $j$  ( $OF_{y,i,j}$ ): Where option 2 of the methodology is followed in any CPA,  $OF_{y,i,j}$  shall be determined for 4th, 5th, 6th and 7<sup>th</sup> operational year with monitoring survey in line with paragraph 22, 23 and 24 of the methodology AMS-III.AR, version 03 /05/.
- Sales information of the lamps shall include information such as lamp wattage, battery type, charging method, the date of sale/distribution, serial number, number of existing project lamps in the household, customer details etc. by the respective CPA implementer and provide the same to the CME.

In conclusion the monitoring plan contains all necessary parameters and they are clearly described.

### 3.13 Management system and quality assurance

The CPA implementer shall maintain a distribution record of the project lamps. A customer database would also be generated through a warranty registration process. Such database(s) shall be submitted to the CME in electronic/hard copy periodically. The CME shall ensure that no more than 652,173 operational project lamps are included in any CPA at any given time.

In case where survey results indicate that desired precision is not achieved, the lower bound of corresponding confidence interval of the parameter value would be used as an alternative to repeating survey. All data records (both electronic and tangible) will be kept for a period of 2 years following the end of the crediting period or last issuance, whichever comes last.

It is RINA's opinion that the data management and quality assurance and quality control procedures are sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified.

### 3.14 Environmental Impacts

No analysis of environmental impact is required by the Indian government for consumer electronics /27/, however, in order to ensure environmental safety, the CPA entity will at the time of lamp distribution, inform the consumers about the collection and disposal of batteries in an environmentally friendly manner and offer an option for replacement, collection and safe disposal of batteries to the users. No trans-boundary effects are expected to result from the implementation of this PoA. RINA concludes that and no significant environmental impacts are expected from the project activity.

### 3.15 Local stakeholders consultation

The local stakeholder consultation process was performed at the PoA level. Since, all CPAs are identical in purpose/goal and the distribution of solar lamp to replace fossil fuel for lighting purpose is a

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characteristic of the programme itself, therefore, the Local Stakeholder's consultation at the PoA level is justified.

Prior to the publication of the PoA-DD version 01 /01/ on the UNFCCC website from 14/10/2011 to 12/11/2011, the CPA Implementer 'Greenlight Planet India Pvt Ltd.' invited local stakeholders through banners and holdings displayed in public places and personal invitations on 25/01/2011/49/ and organized the local stakeholder consultation process on 09/02/2011 for the programme of activity. Gram Panchayat Members, local villagers, were present at the meeting. RINA cross checked the attendance list of stakeholders', the minutes of the stakeholder meeting /50/ and also interviewed some of the local stakeholders during site visit to confirm the consistency of the information provided in the PDD.

A summary of comments has been provided by PP and it is found that no adverse comment was received for the project activity /50/. This has also been verified by RINA validation team during site visit from 09/04/2012 - 13/04/2012 by conducting a random stakeholder's meeting at the end-user sites. Further, the interviewees confirmed that there was no adverse comment about the project and this project will lead to employment generation and better environmental conditions. RINA considers the local stakeholder consultation carried out adequately and can confirm that the process is credible

### 4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PoA-DD version 01 of 01/10/2011 /01/ and the CPA-DD version 01 of 01/10/2011/01/ were made publicly available on the CDM UNFCCC website and Parties, stakeholders and NGOs through the CDM website

(<http://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/OCO7N727VYFR9U81A6E4OV7H3SDGYU/view.html> ) invited to provide comments during a 30 days period from 14/10/2011 to 12/11/2011.

No public comments were received during that period.



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## VALIDATION OPINION

RINA Services Spa (RINA) has performed validation of the programme of activity PoA titled “Greenlight Solar PV Lighting India” in India, and the CPA-DD “Greenlight Solar PV Lighting India “CPA 01” to be included in this PoA, with regard to the relevant requirements for CDM activities.

The review of the project design document and the subsequent follow-up interviews have provided RINA with sufficient evidence to determine the fulfilment of the stated criteria.

The host Party is India and the Annex I Party is United Kingdom of Great Britain and Northern Ireland. Both Parties fulfil the participation criteria and have approved the project and authorized the project participants ‘EcoSecurities India Private Limited’ from India and ‘J.P.Morgan Ventures Energy Corporation’ from Annex I country. The DNA from India confirmed that the project assists in achieving sustainable development.

The project correctly applies the approved baseline and monitoring methodology “AMS-III.AR”, “Substituting fossil fuel based lighting with LED lighting systems”, version 03 of 20/07/2012.

By replacing the fossil fuel based lamps systems currently in use in project households with the solar powered project lamps, the PoA results in reduction of CO<sub>2</sub> emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the “Greenlight Solar PV Lighting India “CPA 01”” were estimated to be annual average 56,397 t-CO<sub>2</sub>e per year over the 7 years’ crediting period, 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 RINA considered all relevant assumptions for the above estimated emission reduction was accurate and appropriate.

The monitoring plan provides for the monitoring of the project’s emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is RINA’s opinion that the project participants are able to implement the monitoring plan.

In conclusion, it is RINA’s opinion that the PoA “Greenlight Solar PV Lighting India” in India, as described in the PoA-DD, version 04 of 29/11/2012 as well as the associated CPA “Greenlight Solar PV Lighting India “CPA 01”, meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology “AMS-III.AR”, “Substituting fossil fuel based lighting with LED lighting systems”, version 03 of 20/07/2012.

RINA thus requests registration of the PoA and the associated CPA under the CDM.

# **APPENDIX A**

## **VALIDATION PROTOCOL**

**TABLE 1 MANDATORY REQUIREMENTS**

| Requirement   | Reference  | Conclusion        |
|---|--|-------------------|
| 1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reductions commitment under Art. 3.   | Kyoto Protocol Art.12.2  | <b>CAR-2, OK</b>  |
| 2. a) LSC - The project shall assist non Annex I Parties in achieving sustainable development and shall have obtained approval of voluntary.  | Kyoto Protocol Art. 12.2, 12.5a, CDM Modalities and Procedures §40a  | <b>NA</b>         |
| 2. b) SSC - The project shall assist non Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.   | Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a   | <b>CAR-2, OK</b>  |
| 3. The project shall assist non Annex I Parties in contributing to the ultimate objective of the UNFCCC.  | Kyoto Protocol Art.12.2.   | <b>CAR-2, OK</b>  |
| 4. The project shall have the written approval of voluntary participation from the designated national authorities of each party involved <sup>1</sup> .  | Kyoto Protocol Art.12.5a, Marrakesh Accords, CDM Modalities §40a, § 28 Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a    | <b>CAR-2, OK</b>  |
| 5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.   | Kyoto Protocol Art. 12.5b  | <b>OK</b>         |
| 6. Reductions in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e..<br>A PoA is additional if it can be demonstrated that in the absence of the CDM (i) the proposed voluntary measure would not be implemented, or (ii) the mandatory policy/regulation would be systematically not enforced and that non-compliance with those requirements is widespread in the country/region, or (iii) that the PoA will lead to a greater level of enforcement of the existing mandatory policy /regulation. | Kyoto Protocol Art. 12.5c, Marrakesh Accords, CDM Modalities §43 and § 44 Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a | <b>CAR-8, OK</b>  |
| 7. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance (ODA) and is separate from and is not counted towards the financial obligations of these Parties.   | Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2  | <b>CAR-12, OK</b> |
| 8. Parties participating in the CDM-PoA shall designate a national authority for the CDM.   | Marrakech Accords, CDM Modalities §29  | <b>OK</b>         |
| 9. The host country and the participating Annex I Party shall be a Party to the Kyoto Protocol.   | Marrakech Accords, CDM Modalities §30  | <b>OK</b>         |
| 10. The participating Annex I Party's assigned amount shall have been calculated and recorded.  | CDM Modalities and Procedures §31b   | <b>OK</b>         |
| 11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and  | CDM Modalities and Procedures §31b   | <b>OK</b>         |

<sup>1</sup> The private or public entity that coordinates the PoA is referred to as a coordinating/managing entity

| Requirement  | Reference  | Conclusion        |
|--|--|-------------------|
| 7.   |  |                   |
| 12. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.   | CDM Modalities and Procedures §37b<br>Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b | <b>CAR-13, OK</b> |
| 13. a) LSC - Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out. | Marrakech Accords, CDM Modalities §37c   | <b>NA</b>         |
| 13. b) SSC - If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented.  | Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c                                       | <b>OK</b>         |
| 14. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel.   | Marrakech Accords, CDM Modalities §37e   | <b>OK</b>         |
| 15. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.   | Marrakech Accords, CDM Modalities §37f   | <b>OK</b>         |
| 16. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.  | Marrakech Accords, CDM Modalities, §40   | <b>OK</b>         |
| 17. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.   | Marrakech Accords, CDM Modalities, §45 b, c, d, e  | <b>CAR-15, OK</b> |
| 18. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.   | Marrakech Accords, CDM Modalities, §47   | <b>OK</b>         |
| 19. The PoA shall be in conformance with the CDM-POA-DD format.  | Marrakech Accords, CDM Modalities, Appendix B, EB Decisions  | <b>OK</b>         |
| 20. SSC - The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category.   | Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e                                       | <b>OK</b>         |
| 21. SSC - The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity.  | Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c                                     | <b>OK</b>         |

Table 2A – Requirements Checklist for PoA

| Checklist Question  | Ref.         | MoV <sup>2</sup> | Comments  | Draft Concl.   | Final Concl. |
|---|--------------|------------------|---|----------------|--------------|
| <b>A. General Description of Programme of Activities</b><br>The Programme of Activities is assessed   |              |                  |   |                |              |
| <b>A.1 Title of the Programme of activities (PoA)</b>   |              |                  |   |                |              |
| A 1.1 Is the Title of the Programme of Activities, version number and date of document (DD) included? | /01/         | DR               | The title of PoA is Greenlight Solar PV Lighting India. The version number is 01 and date of document is 01/10/2011   |                | OK           |
| <b>A.2 Description of the PoA</b>   |              |                  |   |                |              |
| A.2.1. Is the general operating and implementing framework of PoA defined?                            | /01/<br>/24/ | DR/<br>CC        | <p>The coordinating/managing entity (CME) is J.P.Morgan Ventures Energy Cooperation (JPMVEC). The boundary of PoA is political boundary of India. The purpose of project is dissemination of solar chargeable LED lamps for lighting. It is stated in PoA DD that in this project solar LED lamps will thereby replace the fossil fuel based lamps systems currently in use in households, thereby reducing Greenhouse Gas (GHG) emissions resulting from combustion of fossil fuels in the baseline lamps. Please refer section E 4 below.</p> <p>It is stated in section A.2 that at least 70– 80 million rural households still depend on kerosene lamps for meeting a basic need such as lighting. The reference cited is for the year October 2001 which is very old. PP is requested to clarify applicability of such old data to the project activity.</p> <p>Further details will be cross-checked during site visit. Site visit has not been carried out as sale of lamps with CDM markings has not started.</p> <p>Complete details of the operating and implementing framework are not included in PoA</p> | CL-1,<br>GAR-1 | OK           |

<sup>2</sup> MoV- Means of Verification

| Checklist Question | Ref. | MoV <sup>2</sup> | Comments | Draft<br>Concl. | Final<br>Concl. |
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|                    |      |                  | DD       |                 |                 |



| Checklist Question  | Ref. | MoV <sup>2</sup> | Comments   | Draft Concl.                           | Final Concl. |
|---|------|------------------|--|--|--------------|
| A.2.2.Is the Policy/measure or stated goal of the described?  | /01/ | DR               | <p>The objective of PoA is stated as sales/dissemination of Solar LED lamps in India.</p> <p>Complete details of policy\measures are not stated in the PoA-DD. Moreover technological benefits are not included in section A.2 of PoA-DD.</p>  | <del>CAR 1</del>                       | OK           |
| A.2.3.Is the confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity included?   | /01/ | DR/CC            | <p>It is stated in section A.2 of PoA-DD that it is a voluntary action by coordinating/managing entity.</p> <p>Project participants are requested to provide approval from DNA from India and United Kingdom</p> <p>Complete name of Annex I party is not mentioned in section A.3 of PoA DD</p>                 | <del>CAR 1,</del><br><del>CAR 2</del>  | OK           |
| A 2.4 Is it explained how the programme of activities reduces greenhouse gas emissions, i.e. technology, measures?  | /01/ | DR               | <p>It is stated that project will reduce GHG emissions by replacing fossil fuel (kerosene) lamps as a preferred source of lighting Please refer section E 4 below.. Project involves distributing solar LED lamps to replace fossil fuel lamps. Please refer section A4.2.2.1, A 4.2.2.2 and A 4.2.2.3 below</p> | <del>CAR 7,</del><br><del>CAR 15</del> | OK           |
| <b>A. 3Coordinating/managing entity and participants of POA</b>   |      |                  |  |  |              |
| A.3.1.Is the coordinating/managing entity of the programme been identified?   | /01/ | DR               | <p>The coordinating/managing entity (CME) is J.P.Morgan Ventures Energy Cooperation (JPMVEC). The boundary of PoA is political boundary of India.</p>  |  | OK           |
| A.3.2.Have all involved Parties provided a valid and complete letter of approval and have all private/public programme participants been authorized by an involved Party? | /01/ | DR               | <p>The project participants are J.P.Morgan Ventures Energy Cooperation (JPMVEC) and Greenlight Planet India Private Limited (GLP).</p>   | <del>CAR 3,</del><br><del>CAR 2</del>  | OK           |

| Checklist Question | Ref. | MoV <sup>2</sup> | Comments   | Draft<br>Concl. | Final<br>Concl. |
|--------------------|------|------------------|--|-----------------|-----------------|
|                    |      |                  | <p>It is not indicated section A.3 of PoA DD whether project participants are public or private entity</p> <p>PP is requested to provide approval from DNA from India and United Kingdom</p> |                 |                 |

| Checklist Question   | Ref.         | MoV <sup>2</sup> | Comments   | Draft Concl.   | Final Concl. |
|--|--------------|------------------|--|----------------|--------------|
| A 3.3 Are the Project participants being registered in relation to the PoA involved in one of the CPAs related to the PoA?. (they may or may not be involved). If not involved who are the PPs not involved? | /01/         | DR               | The project participants are J.P.Morgan Ventures Energy Cooperation (JPMVEC) and Greenlight Planet India Private Limited (GLP).<br><br>The Greenlight Planet India Private Limited (GLP) is CPA Implementor for the specific CPA 'Greenlight Solar PV Lighting India 'CPA 1' provided for validation |                | OK           |
| <b>A.4. Technical description of the programme of activities</b>   |              |                  |  |                |              |
| A.4.1. Is the location of the Programme of activities described?   | /01/         | DR/CC            | Location of PoA is political boundary of India   |                | OK           |
| A.4.1.1. Are the Parties involved in the Programme of Activities indicated?  | /01/         | DR               | The project participants are J.P.Morgan Ventures Energy Cooperation (JPMVEC) and Greenlight Planet India Private Limited (GLP). India is the host party and United Kingdom is the Annex-1 party  |                | OK           |
| <b>A.4.1.2 Physical/ Geographical boundary:</b>  |              |                  |  |                |              |
| A4.1.2.1 Are the programme's spatial boundaries (geographical) clearly defined?  | /01/         | DR/CC            | Map of geographical boundary is not provided. It is not transparent that the programme's spatial boundary is covering all states and union territories of India.   | CAR-4          | OK           |
| A4.1.2.2 Are the programme's system boundaries (components and facilities used to mitigate GHGs) clearly defined?  | /01/         | DR/CC            | The project reduces GHGs by replacing fossil fuel (kerosene) lamps by solar chargeable LED lamps. However the system boundaries are not stated in detail in the PoA DD   | CAR-4          | OK           |
| A4.1.2.3 Can each CPA under the PoA be clearly identified individually including spatial boundaries (geographical) clearly defined?  | /01/         | DR/CC            | The PoA DD is not transparent on how the spatial boundaries of the individual CPAs are defined. It is not clear how each CPAs will be distinguished  | CAR-4          | OK           |
| A 4.1.2.4 Does the programme establish eligibility criteria for inclusion of a project as a CPA under the PoA?   | /01/<br>/06/ | DR/CC            | Guidelines for Demonstrating additionality of micro scale project activities, is not the latest Guidelines.<br><br>The eligibility criteria for the CPA to be included in  | CAR-5,<br>GL-2 | OK           |

| Checklist Question | Ref. | MoV <sup>2</sup> | Comments   | Draft Concl. | Final Concl. |
|--------------------|------|------------------|--|--------------|--------------|
|                    |      |                  | <p>the PoA are defined as follows</p> <ul style="list-style-type: none"> <li>• The proposed SSC-CPA and all units installed under it must be within the geographical boundary of India.</li> <li>• The technology used under the proposed SSC-CPA consists of solar LED lighting system.</li> <li>• Solar LED lamps included in the proposed CPA must comply with applicability criterion of meth AMS-III.AR version 01.</li> <li>• The total number of all lamps installed under the proposed CPA are limited to those that result in emissions reductions of less than or equal to 20 kt CO<sub>2</sub> equivalent annually.</li> <li>• The SSC-CPA does not result in diversion of ODA.</li> <li>• The SSC-CPA is checked and approved by the CME before being included under the PoA.</li> <li>• Each SSC-CPA will be developed and implemented by a CPAI which has signed the standard contractual agreement with the CME to participate in the PoA; such agreement guiding the transfer of the emission reduction rights to the CME.</li> <li>• The SSC-CPA shall apply the small-scale methodology AMS.III.AR, version 01.</li> <li>• Each of the independent subsystems/measures in the CPA should achieve less than 600 tCO<sub>2</sub>e reduction per year</li> <li>• End users of the subsystems or measures should be households/communities/SMEs.</li> </ul> <p>Further it is not transparent on how the managing entity will monitor compliance to the conditions before inclusion of any CPA.</p> |              |              |

| Checklist Question | Ref. | MoV <sup>2</sup> | Comments   | Draft<br>Concl. | Final<br>Concl. |
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|                    |      |                  | <p>The eligibility criteria defined has not taken in to account the conditions for double counting of emission reductions. The eligibility criteria does not include conditions to check start date with documentary evidence. Also eligibility criteria does not includes to how it will be ensured that solar chargeable LED lamps replace fossil fuel lamps.</p> <p>Project participant is requested to provide copy of agreement between J.P.Morgan Ventures Energy Cooperation (JPMVEC) and Greenlight Planet India Private Limited (GLP) who is CPA Implementer of CPA 1</p> |                 |                 |

| Checklist Question   | Ref.         | MoV <sup>2</sup> | Comments   | Draft Concl.     | Final Concl. |
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| A.4.2.Is description of a typical CDM programme activity (CPA) included? <sup>3</sup>  | /01/         | DR               | Description of typical CPA is included. CPA involve distribution of solar LED lamps as alternative to fossil fuel based lamps. The CPA will be within geographical boundary of India. CME will check inclusion of new CPA in PoA.  |                  | OK           |
| A 4.2.1 Are the CPAs under the programme qualify as small scale CDM project activities as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM? | /01/         | DR/CC            | CPA qualify as small scale project activity under Type III as emission reductions are no more than 20 ktCO <sub>2</sub> e per year as demonstrated in section E 6.2 of POA DD. Please refer section E.6 below.<br><br>The PoA-DD does not include details that PoA will remain under the limit of small scale throughout the crediting period.   | <del>CAR-6</del> | OK           |
| A.4.2.2.Is technology or measures to be employed by the CPA described? <sup>4</sup>  | /01/         | DR               | Technology to be employed under CPA is described in section A 4.2.1 of PoA-DD. A typical LED lamp consist of solar panel that convert solar energy into electricity by photovoltaic effect. A typical solar LED lamp consist of solar panel, luminary and battery. The battery will be charged by the solar panel during the day and this stored energy will be used to drive the luminaries. Each CPA-DD shall describe the design specifications of the project lamps included in the CPA. |                  | OK           |
| A 4.2.2.1 Does the programme design engineering reflect current good practices?  | /01/<br>/05/ | DR               | Project participant is requested to provide details on whether programme design engineering reflect good practices.<br><br>PoA DD does not contain details design specifications of project lamps as per para 6 of methodology AMS III AR ver 1.   | <del>CAR-7</del> | OK           |
| A 4.2.2.2 Does the programme use state of the art technology or would  | /01/         | DR               | Project participant is requested to provide detail   | <del>CAR-7</del> | OK           |

<sup>3</sup> SSC - It is assessed whether the project qualifies as small-scale CDM Programme Activity

<sup>4</sup> Validation of project technology focuses on the programme engineering, choice of technology and Competence maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used



| Checklist Question   | Ref.         | MoV <sup>2</sup> | Comments   | Draft Concl.     | Final Concl. |
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| the technology result in a significantly better performance than any commonly used technologies in the host country? |              |                  | on whether project uses state of the art technology and whether it involves technology transfer. Further project participant is requested to provide detail whether the technology result in significantly better performance than commonly available technology in the host country.  |                  |              |
| A 4.2.2.3 Does the programme make provisions for meeting training and maintenance needs?                             | /01/         | DR               | Project participant has not provided details on meeting training and maintenance needs for the project activity.   | <del>CAR-7</del> | OK           |
| A.4.2.3.Is Eligibility criteria for inclusion of a CPA in the PoA included?  | /01/         | DR/CC            | Eligibility criteria for inclusion of CPA in the PoA has been included. Please refer 4.1.2.4 above   | <del>CAR-5</del> | OK           |
| A 4.2.3.1 Is the description of criteria for enrolling the CPA in the PoA clearly described ?                        | /01/         | DR/CC            | Eligibility criteria for inclusion of CPA in the PoA has been included. Please refer 4.1.2.4 above   | <del>CAR-5</del> | OK           |
| A.4.3.Is description and demonstration of additionality included?  | /01/<br>/06/ | DR/CC            | <p>Project participant has used Guidelines for demonstrating additionality for microscale project activities for demonstrating additionality of the project activity. As per the guidelines, it is a type III project activity with no more than 20 ktCO<sub>2</sub>e of emission reductions per year. Each subsystem achieves less than 600tCO<sub>2</sub> reduction per year and end users are households/communities/SMEs.</p> <p>The latest version of Guidelines for demonstrating additionality for microscale project activity is not used in PoA DD.</p> <p>It is required to demonstrate additionality of PoA as a whole in section A4.3 of PoA DD.</p> | <del>CAR-8</del> | OK           |
| A.4.3.1 Is it demonstrated that the proposed PoA is a voluntary coordinated action?                                  | /01/         | DR               | <p>It is stated in PoA DD that it is a voluntary program by CME. Use of Solar PV lighting is not mandatory in India.</p> <p>Project participant is requested to provide DNA approval from India and United Kingdom.</p>  | <del>CAR-2</del> | OK           |

| Checklist Question   | Ref. | MoV <sup>2</sup> | Comments  | Draft Concl.                          | Final Concl. |
|--|------|------------------|---|---------------------------------------|--------------|
| A.4.3.2 Is it demonstrated that the PoA is implementing a voluntary coordinated action, it would not be implemented in the absence of the PoA?                                 | /01/ | DR               | <p>It is stated in PoA DD that it is a voluntary program by CME. Use of Solar PV lighting is not mandatory in India as there are no regulations of Government of India which mandates installation of solar LED lamps. Additionality of the project in section A 4.3 of PoA DD is demonstrated as per Guidelines for demonstrating additionality for microscale project activities. As the additionality is demonstrated, the project would have been implemented otherwise.</p> <p>Project participant is requested to provide DNA approval from India and United Kingdom.</p> | <del>CAR-2,</del><br><del>CAR-8</del> | OK           |
| A.4.3.3 If the PoA is implementing a mandatory policy/regulation, is it demonstrated that this would/is not enforced?  | /01/ | DR               | Use of solar PV lighting is not mandatory in India as there are no regulations of Government of India which mandates installation of solar LED lamps so PoA is not implementing a mandatory policy/regulation   |                                       | OK           |
| A.4.3.4 If mandatory a policy/regulation is enforced, is it demonstrated that the PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation? | /01/ | DR               | Use of solar PV lighting is not mandatory in India as there are no regulations of Government of India which mandates installation of solar LED lamps so PoA is not implementing a mandatory policy/regulation   |                                       | OK           |
| 4.3.5 On the whole is it demonstrated that the PoA is additional?  | /01/ | DR/<br>CC        | The latest version of Guidelines for demonstrating additionality for microscale project activity is not used in PoA DD  | <del>CAR-8</del>                      | OK           |
| A.4.4. Is Operational, management and monitoring plan for the programme of activities(PoA) included?   | /01/ | DR/<br>CC        | <p>Operation and management plan has been included in section A 4.4.1 of PoA DD.</p> <p>Detailed roles and responsibilities are not provided in detail in PoA DD. The details on how information will flow from CPA Implementer to CME is not transparently described in PoA DD.</p> <p>Further details will be cross checked during site</p>   | <del>CAR-9</del>                      | OK           |

| Checklist Question | Ref. | MoV <sup>2</sup> | Comments   | Draft<br>Concl. | Final<br>Concl. |
|--------------------|------|------------------|--|-----------------|-----------------|
|                    |      |                  | visit. Site visit has not been carried out as sale of lamps with CDM markings has not started. |                 |                 |

| Checklist Question   | Ref.         | MoV <sup>2</sup> | Comments  | Draft Concl.      | Final Concl. |
|--|--------------|------------------|---|-------------------|--------------|
| A.4.4.1. Is Description of the operational and management arrangements established by the coordinating/managing entity for the implementation of the PoA, included?                              | /01/         | DR               | Detailed roles and responsibilities are not provided in detail in PoA DD.   | <del>CAR-9</del>  | OK           |
| A.4.4.1.1 Is a record keeping system for each CPA under the programme clearly defined?   | /01/         | DR               | It is not clear from the PoA DD as to whether sales information and product characteristics would be recorded at distributor level or dealer level etc  | <del>CAR-9</del>  | OK           |
| A.4.4.1.2 Is a system/procedure to avoid inclusion of CPAs that have already been registered either as CDM project activity or as a CPA of another PoA identified and defined ?                  | /01/         | DR               | <p>The description has been provided to avoid inclusion of a CPA that has already been registered either as a CDM project activity or as a CPA of another PoA.</p> <p>The specific CPA that has been provided does not contain any details of which lamps are part of it and it is not clear from PoA DD as to how it will be tracked as to which lamps are part of which CPA.</p>  | <del>CAR-9</del>  | OK           |
| A.4.4.1.3 Are the provisions to ensure that those operating the CPA are aware and have agreed that their activity is being subscribed to the PoA defined?  | /01/         | DR               | It is stated that CPA Implementer will sign an agreement with CME   |                   | OK           |
| A.4.4.1.4 – SSC - Is a procedure in place and defined to confirm that SSC-CPA included in the PoA is not a de-bundled component of another CDM programme activity (CPA) or CDM project activity? | /01/<br>/07/ | DR/<br>CC        | It is stated in CPA-DD that if each independent subsystem/ measures included in the CPA of a PoA is <i>not greater than 1%</i> of the small scale threshold defined by the methodology applied, then that CPA of PoA is <i>exempted</i> from performing de-bundling check. The threshold defined by the small –scale methodology AMS III.AR is the same as that for all Type III project activities i.e., emissions reductions of less than or equal to 60 kt CO <sub>2</sub> equivalent annually. The default emission factor defined in paragraph 13 of the methodology is 0.08 tCO <sub>2</sub> e per project lamp/year which is less than 1% of 60 kt CO <sub>2</sub> e as well as 20 kt CO <sub>2</sub> e if compared with micro-scale project limit. Hence, <i>the program is exempted from carrying out a de-bundling check.</i> | <del>CAR-10</del> | OK           |

| Checklist Question  | Ref.         | MoV <sup>2</sup> | Comments   | Draft Concl.         | Final Concl. |
|---|--------------|------------------|--|----------------------|--------------|
|   |              |                  | Project participant has not used the latest version of Guidelines on assessment of de-bundling for SSC project activities  |                      |              |
| A.4.4.2.Is the Monitoring plan included? <sup>5</sup>   | /01/<br>/08/ |                  | Monitoring plan has been included  |                      | OK           |
| A.4.4.2.1 Does the monitoring plan include a description of a proposed statistically sound sampling method and procedure to be used by designated operational entities for verification of GHG emission reductions by CPAs under the programme? | /01/<br>/08/ | DR/<br>CC/ I     | Monitoring plan does not include a description of a proposed statistically sound sampling method and procedure to be used by designated operational entities for verification of GHG emission reductions by CPAs under the programme.No reference is given to standard for sampling and surveys for CDM project activities and programme of activities and it is not clear whether the sampling plan provided in PoA DD is as per this standard.<br><br>Complete details for CPA using Option 2 for determining effective useful life of lamps are not provided in PoA DD.<br><br>Further details will be cross-checked during site visit. | <del>CAR</del><br>44 | OK           |
| A.4.4.2.2 If the programme does not use verification method that applies a statistical method for sampling, has a system been defined to avoid double counting of CERs, and is the system transparent?  | /01/<br>/08/ | DR/<br>CC/I      | It is stated that programme will use statistically method for sampling but the same is not included. Please refer 4.4.2 (i) above  | <del>CAR</del><br>44 | OK           |
| <b>A.4.5.Public funding of the programme of activities (PoA):</b>   |              |                  |  |                      |              |
| A 4.5.1 Is there any public funding for the PoA? If so are the details of the funding described transparently?  | /01/         | DR               | It is stated that there is no public funding to finance the program. Project participant is requested to clarify mode of funding with evidence   | <del>CAR</del><br>42 | OK           |
| <b>B. Duration of the programme of activities (PoA)</b>   |              |                  |  |                      |              |

<sup>5</sup> It is assessed whether the monitoring plan provides for reliable and complete emission data over time.

| Checklist Question   | Ref. | MoV <sup>2</sup> | Comments  | Draft Concl. | Final Concl. |
|--|------|------------------|---|--------------|--------------|
| <b>B.1.Starting date of the programme of activities (PoA)</b>  |      |                  |   |              |              |
| B 1.1 Is the starting date of the PoA clearly mentioned in the dd/mm/yyyy format with description of the event on that date <sup>6</sup> ? | /01/ | DR               | Starting date of PoA is defined as 30/09/2011 as date of signature of validation work order.<br><br>Project participant is requested to clarify whether this is the first real action taken by project participant towards the project activity | CL-3         | OK           |
| <b>B.2.Length of the programme of activities (PoA)</b>   |      |                  |   |              |              |

<sup>6</sup> Starting date and length of the PoA is not exceeding 28 years (60 years for A/R).



| Checklist Question   | Ref.         | MoV <sup>2</sup> | Comments  | Draft Concl. | Final Concl. |
|--|--------------|------------------|---|--------------|--------------|
| B 2.1 Is the length of the programme of activities clearly defined and mentioned?  | /01/         | DR/<br>CC        | The length of the PoA is defined as 28 years from the time of registration of PoA and is in line 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 4.1) (EB 55, Annex 38). |              | OK           |
| <b>C. Environmental Analysis<sup>7</sup></b>   |              |                  |   |              |              |
| <b>C.1 Level of Environmental Analysis</b>   |              |                  |   |              |              |
| C.1.1 Is it indicated of the level at which the Environmental Analysis is done? ( POA or CPA level)  | /01/         | DR/<br>CC/I      | It is indicated that environmental analysis will be carried out at PoA level  |              | OK           |
| C 1.2 Is there any justification provided for the selection of the level of environmental analysis carried out?  | /01/         | DR/<br>CC/ I     | It is stated in PoA DD that all CPA under PoA shall disseminate solar lighting system and thus will have same impact as PoA itself  |              | OK           |
| <b>C.2 Documentation of the EIA</b>  |              |                  |   |              |              |
| C.2.1 Is the documentation on the environmental impacts, including transboundary impacts included in the PoA DD?   | /01/         | DR               | Project participant may clarify regarding legal requirements for disposal of batteries and any other rules regarding disposal of e-waste. Also project participant is requested to clarify regarding transboundary effects.   | CL4          | OK           |
| <b>C.3 Host party regulation</b>   |              |                  |   |              |              |
| C.3.1 Is it mentioned clearly if it is required to conduct environmental analysis for a typical CPA included in the PoA, as per the host country laws/regulations? | /01/<br>/27/ | DR/<br>CC        | It is stated EIA is not required for CPA as per EIA notification of Ministry of Environment & Forests, Govt of India  |              | OK           |
| <b>D. Stakeholders' comments</b>   |              |                  |   |              |              |
| <b>D.1. Level at which local stakeholder comments are invited</b>  |              |                  |   |              |              |

<sup>7</sup> Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator

| Checklist Question  | Ref.                          | MoV <sup>2</sup> | Comments   | Draft Concl. | Final Concl. |
|---|-------------------------------|------------------|--|--------------|--------------|
| D1.1 Is it indicated of the level at which the local stakeholder consultation is done?  | /01/,<br>/9/,<br>/10/,<br>11/ | DR               | It is indicated that local stakeholder consultation will be carried out at PoA level   |              | OK           |
| D 1.2 Is there any justification provided for the selection of the level at which the local stakeholder consultation is done? | /01/,<br>/9/,<br>/10/,<br>11/ | DR               | Project participant is requested to provide justification for selection of level at which local stakeholder consultation is done | CAR<br>13    | OK           |
| <b>D.2.Brief description how comments by local stakeholders have been invited and compiled</b>                                |                               |                  |  |              |              |

| Checklist Question   | Ref.                         | MoV <sup>2</sup> | Comments  | Draft Concl.       | Final Concl. |
|--|------------------------------|------------------|---|--------------------|--------------|
| D 2.1 Are relevant stakeholders consulted, appropriate method/media used and reasonable time given for the stakeholders to offer their comments?               | /01/<br>/9/<br>/10/<br>/11/  | DR/<br>CC        | <p>It is stated in the PoA DD that stakeholders consisting of customers, dealers, local entrepreneurs, representative of Panchayat Samiti participated in the meeting. This will be cross checked during site visit.</p> <p>Project participant has not mentioned date of inviting stakeholders for the meeting.</p> <p>Further details will be cross-checked during site visit.</p> <p>Project participant is requested to provide supporting documents for invitation letter and public notice for inviting stakeholders for the meeting.</p> | CAR<br>13, CL<br>5 | OK           |
| D 2.2 If local stakeholder comments are invited at the PoA level, is the information on how comments by local stakeholders were invited included in PD?        | /01/<br>/09/<br>/10/<br>/11/ | DR/<br>CC        | <p>Stakeholder meeting was held on 09/02/2011 in which stakeholders made comments.</p> <p>It is stated in PoA DD that stakeholders were invited personally and through public notice. Project participant has not mentioned date of inviting stakeholders for the meeting.</p> <p>Further details will be cross-checked during site visit.</p>  | CAR<br>13          | OK           |
| <b>D.3 Summary of comments received</b>  |                              |                  |   |                    |              |
| D 3.1 If local stakeholder comments are invited at the PoA level, is the summary of the comments received are included in PD?                                  | /01/<br>/09/                 | DR/<br>CC        | Summary of comments is provided in PoA DD. Stakeholders making comments have not been identified in PoA DD  | CAR<br>13          | OK           |
| D 3.2 If local stakeholder comments are invited at the PoA level, is the information on how due account was taken of any comments received are included in PD? | /01/<br>/09/                 | DR/<br>CC        | It is stated in PoA DD that none of the comments required follow-up. As per comments on POA DD, there are no negative comments which required follow-up This will be verified during site visit   | CAR<br>13          | OK           |
| <b>D.4 Report on how due account was taken of any comments received</b>  |                              |                  |   |                    |              |

| Checklist Question  | Ref.          | MoV <sup>2</sup> | Comments  | Draft<br>Concl. | Final<br>Concl. |
|---|---------------|------------------|---|-----------------|-----------------|
| D 4.1 Has due account been taken of any stakeholders' comments received?          | /01/,<br>/09/ | DR/<br>CC        | It is stated in PoA DD that none of the comments required follow-up. As per comments on POA DD, there are no negative comments which required follow-up This will be verified during site visit | -               | OK              |
| <b><i>E. Application of a baseline and monitoring methodology<sup>8</sup></i></b> |               |                  |   |                 |                 |

<sup>8</sup> Assessment of the baseline, whether programme applies an appropriate baseline methodology

| Checklist Question   | Ref.         | MoV <sup>2</sup> | Comments   | Draft Concl.   | Final Concl. |
|--|--------------|------------------|--|----------------|--------------|
| E.1.Does the programme apply an approved methodology and the correct version that can be used for PoA?                                 | /01/<br>/05/ | DR/<br>CC        | The PoA uses AMS III.AR. "Substituting fossil fuel based lighting with LED lighting systems",version 01. Request for registration using this version can be submitted till 09/08/2012.   |                | OK           |
| E 1.1 Is the title and version number of the approved baseline and monitoring methodology clearly mentioned in the DD?                 | /01/<br>/05/ | DR/<br>CC        | The title of methodology AMS.III.AR is "Substituting fossil fuel based lighting with LED lighting systems" and version is 01 which are correctly mentioned in PoA DD   |                | OK           |
| E.2. Are the justification of choice of methodology included and all the applicability criteria in the baseline methodology fulfilled? | /01/<br>/05/ | DR/<br>CC/I      | <p>The following justification is provided in PoA DD for applicability conditions of methodology</p> <p>1) The project involves distribution of solar LED lamps as alternative to fossil fuel based lamps.</p> <p>2) The project lamps are charged by renewable energy source i.e. solar energy</p> <p>3) It is stated in PoA DD that each CPA shall be capped at a threshold of no more than 20 kt CO2 e annually</p> <p>Project participant is requested to provide following documents</p> <p>1) Document in support of rated average life of atleast 5000 hours and battery charging efficiency at the time of purchase of atleast 50%.</p> <p>2) Document in support of minimum one year warranty.</p> <p>Project participant may also clarify how it will be ensured that not more than 5 lamps per household (for residential applicaton) or per business location (for eg commercial application</p> | GL-6,<br>CAR16 | OK           |

| Checklist Question | Ref. | MoV <sup>2</sup> | Comments   | Draft<br>Concl. | Final<br>Concl. |
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|                    |      |                  | such as shops) will be ensured. Project participant may clarify as to what types of checks/controls will be inbuilt into customer registration database to ensure selling of not more than 5 lamps as per above mentioned criteria. Also project participant is requested to clarify as to how it will be ensured that total emission reductions are 20,000 tCO <sub>2</sub> e per year. |                 |                 |



| Checklist Question   | Ref.          | MoV <sup>2</sup> | Comments  | Draft Concl. | Final Concl. |
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| E.3. Are the sources and gases included in the CPA boundary described?   | /01/,<br>/05/ | DR/<br>CC        | Project boundary is not mentioned in section E.3 of PoA DD.   | CAR<br>14    | OK           |
| E.4. Is the description on how the baseline scenario is identified and identified scenario is clearly described? | /01/<br>/05/  | DR/<br>CC/I      | <p>Baseline scenario is not justified.</p> <p>1) It is stated in section E 4 that 149.23 million kerosene lamps are used in various parts of the country. The publication cited is for the year 2004 which is very old. Project participant is requested to justify applicability of such old data for the project activity.</p> <p>2) National Sample Survey Organization Publication 'Energy sources of Indian households for cooking and lighting 2004-05 also provides data which is old and project participant is requested to justify applicability of such old data to the project activity.</p> <p>3) Further the document of national Sample Survey states that 44.4% of households in rural India use kerosene whereas in urban India only 7.1% of households use kerosene. The document further states that there was a drop in the percentage of households using kerosene as primary source of energy for lighting from 51% to 44% in rural India, and from 10% to 7% in urban India, since 1999-2000. Project participant is requested to explain how Kerosene can be taken as common practice of fuel if its usage is on decline and it does not account for significant proportion of fuel considering both urban and rural areas. The project activity does not restrict selling of lamps in only rural areas and its geographical boundary is political boundary of India.</p> <p>4) It is stated in section E 4 that at least 70-80</p> | CAR<br>15    | OK           |

| Checklist Question | Ref. | MoV <sup>2</sup> | Comments   | Draft Concl. | Final Concl. |
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|                    |      |                  | <p>million rural households still depend on kerosene lamps for meeting a basic need such as lighting. The publication cited is for the is very old. Project participant is requested to justify applicability of such old data for the project activity.</p> <p>5) It is stated in section E 4 that <i>360 million</i> people, who are without electricity, are still dependent on kerosene as a lighting fuel. The reference cited only states that 360 million people lack access to electricity but it does not state that they use Kerosene for lighting. Project participant is requested to explain the same.</p> <p>6) It is stated in E 4 that significant part of Indian rural population relies on Kerosene based lighting and thus in absence of project activity baseline scenario would be continued use of fossil fuel for lighting purpose. The project distributes lamps not only in rural India but geographical area is political boudary of India so project participant is requested to explain how data of only rural India is used to demonstrate that Kerosene is significant fuel and moreover the literature cited is of year 2004-05 which is very old so project participant may explain its applicability to project activity.</p> |              |              |

| Checklist Question  | Ref.                 | MoV <sup>2</sup> | Comments  | Draft Concl. | Final Concl. |
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| <b>E.5.Assessment and demonstration of additionality of CPA</b>   |                      |                  |   |              |              |
| E 5.1Has the PPs shall demonstrated, using the procedure provided in the baseline and monitoring methodology applied, additionality of a typical CPA.         | /01/<br>/06/         | DR/<br>CC        | Project participant has used Guidelines for demonstrating additionality for microscale project activities for demonstrating additionality of the project activity. As per the guidelines, it is a type III project activity with no more than 20 ktCO <sub>2</sub> e of emission reductions per year. Each subsystem achieves less than 600tCO <sub>2</sub> reduction per year and end users are households/communities/SMEs.<br><br>The latest version of Guidelines for demonstrating additionality for microscale project activity is not used in PoA DD | CAR-8        | OK           |
| E.5.2.Are the key criteria for assessing additionality of a CPA when proposed to be included in the registered PoA provided in the PoA DD?                    | /01/<br>/06/         | DR/<br>CC        | Project participant has used Guidelines for demonstrating additionality for microscale project activities for demonstrating additionality of the project activity. As per the guidelines, it is a type III project activity with no more than 20 ktCO <sub>2</sub> e of emission reductions per year. Each subsystem achieves less than 600tCO <sub>2</sub> reduction per year and end users are households/communities/SMEs.   |              | OK           |
| E 5.3 Is it demonstrated how these criteria would be applied to assess the additionality of a typical CPA at the time of inclusion.                           | /01/<br>/06/         | DR/<br>CC        | These criteria listed in section E 5.1 are part of eligibility criteria for inclusion of CPA  |              | OK           |
| <b>E.6Estimation of emission reductions of a CPA</b>  |                      |                  |   |              |              |
| E.6.1Is the explanation of methodological choices, provided in the approved baseline and monitoring methodology applied, selected for a typical CPA included? | /01/<br>/05/<br>/28/ | DR/<br>CC        | Paragraph 6 and 7 of AMS III. AR. ver 01 – ‘Substituting fossil fuel based lighting with LED lighting systems are not included in section E 6.1 of PoA DD.  | CAR-46       | OK           |
| E.6.2 Are the equations, including fixed parametric values, to be used for calculation of emission reductions of a CPA included?                              | /01/, ,<br>/05//28/  | DR/<br>CC        | Fixed parameters as per para 12 and 13 of methodology AMS III.AR., ver 01 – ‘Substituting fossil fuel based lighting with LED lighting systems  |              | OK           |

| Checklist Question | Ref. | MoV <sup>2</sup> | Comments               | Draft<br>Concl. | Final<br>Concl. |
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|                    |      |                  | are included in PoA DD |                 |                 |

| Checklist Question   | Ref.       | MoV <sup>2</sup> | Comments   | Draft Concl. | Final Concl. |
|--|------------|------------------|--|--------------|--------------|
| E.6.3 Are the Data and parameters that are to be reported in DD form provided in the tabular format?   | /01/, /28/ | DR/CC            | The three parameters DV, GF,y and DB,y are included in tabular format in PoA DD  |              | OK           |
| <b>E.7 Application of the monitoring methodology and description of the monitoring plan</b>  |            |                  |  |              |              |
| E.7.1 Are the Data and parameters to be monitored by each CPA provided in the tabular format?  | /01/, /05/ | DR/CC            | The parameters to be monitored are included in section E 7.1 of PoA DD. These parameters are Number of project lamps distributed to end users, Percentage of project lamps distributed to end users that are operating and in service and Sales information of the lamp. These are in line with methodology.<br><br>Further details will be cross-checked during site visit. |              | OK           |
| E.7.2 Is the detailed monitoring plan for the CPA provided and is it appropriate and complete?   | /01/, /05/ | DR/CC            | In section E.7.2 of PoA DD, reference is given to section A 4.4.1 and A 4.4.2 of PoA DD. Monitoring plan for SSC-CPA is not provided.<br><br>Further details will be cross-checked during site visit.  | CAR 47       | OK           |
| <b>E.8 Application of the baseline study and monitoring methodology</b>  |            |                  |  |              |              |
| E 8.1 Are the date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies) provided transparently? | /01/,      | DR/CC            | Date of completion of the application of the baseline study are provided and name of responsible person are also provided.   |              | OK           |
| Annex 1 Are the details of contact information on Coordinating/managing entity and participants in the programme of activities provided in the tabular format?                     | /01        | DR               | Detail of contact information on CME and project participant are provided in Annex 1 in tabular format   |              | OK           |
| Annex 2 Are the details of public funding if any is provided ?   | /01        | DR               | In Annex 2, reference is given to section A 4.2.2 and E 5.2. Project participant may clarify why reference is provided to these sections.  | CL-7         | OK           |
| Annex 3 Are the details of baseline information provided and is complete?  | /01        | DR               | Reference is provided to section E.4 of PoA DD   |              | OK           |
| Annex 4 Are the details of monitoring information provided and is  | /01        | DR               | Reference is provided to section E.7 of PoA DD   |              | OK           |

| Checklist Question        | Ref. | MoV <sup>2</sup> | Comments | Draft<br>Concl. | Final<br>Concl. |
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| complete and appropriate? |      |                  |          |                 |                 |

Table 2 B – Requirements Checklist for CPA

| Checklist Question  | Ref.         | MoV* | Comments   | Draft Concl. | Final Concl. |
|---|--------------|------|--|--------------|--------------|
| <b>A. General description of CDM programme activity (CPA)</b>   |              |      |  |              |              |
| <b>A.1 Title of the CPA</b>   |              |      |  |              |              |
| A 1.1 Is the title of the CPA, version number and date of document (DD) provided transparently and in the prescribed date format? | /03/         | DR   | The title of CPA is provided as 'Greenlight Solar PV Lighting India "CPA 1". The version number is 01 and date is 01/10/2011<br>The title is in line with generic CPA also.  |              | OK           |
| <b>A.2. Description of the CPA</b>  |              |      |  |              |              |
| A 2.1 Is the purpose of CPA included?   | /01/<br>/03/ | DR   | The purpose of PoA is the dissemination of solar chargeable LED lamps to provide basic lighting service to millions of households in India<br><br>The generic CPA also states same purpose of project activity.  |              | OK           |
| A 2.2 Is it explained how the CPA reduces greenhouse gas emissions, i.e. technology, measures?                                    | /01/<br>/03/ | DR   | CPA will replace the fossil fuel based lamps systems currently in use in households thereby reducing Greenhouse Gas (GHG) emissions resulting from combustion of fossil fuels in the baseline lamps. Technology is also stated in CPA-DD. The same description is given in generic CPA also. A typical solar LED lamp consist of solar panel, luminary and battery. The battery will be charged by the solar panel during the day and this stored energy will be used to drive the luminaries. Each CPA-DD shall describe the design specifications of the project lamps included in the CPA. Please refer section A 4.1 below |              | OK           |
| <b>A.3. Entity/individual responsible for the CPA:</b>  |              |      |  |              |              |
| A 3.1 Is the information on the entity/individual responsible of the CPA (CPA implementer) included?                              | /03/         | DR   | Greenlight Planet India Private Limited. (GLP) is the implementer of CPA.  |              | OK           |



| Checklist Question  | Ref.         | MoV*        | Comments   | Draft Concl.       | Final Concl. |
|---|--------------|-------------|--|--------------------|--------------|
| A 3.2 Is the name of the implementers / participants of CPA submitted, is included in the registered PoA <sup>9</sup> ?   | /01/<br>/03/ | DR          | The PoA is not yet registered.   |                    | OK           |
| <b>A.4. Technical Description of the CPA<sup>10</sup></b>   |              |             |  |                    |              |
| A.4.1.Do the CPAs under the programme qualify as small scale CDM project activities?  | /03/         | DR/<br>CC   | <p>It is stated in CPA-DD that the proposed CPA is expected to result in a reduction of not more than 20ktCO<sub>2</sub> per annum which falls under the limit of microscale CDM project activity.</p> <p>The CPA that has been provided does not contain any details of which lamps are part of it and it is not clear as to how it will be tracked as to which lamps are part of which CPA. Technological benefits are not included in section A.2 of CPA-DD.</p> <p>Project participant is requested to provide supporting documents for design specifications of lamps given in section A.4 of CPA-DD.</p> | CAR<br>18, CL<br>8 | OK           |
| A.4.1.1.Is the details of the Host Party of the CPA included?   | /03/         | DR          | Host party is stated as India in CPA-DD (specific and generic)   |                    | OK           |
| A.4.1.2.Is the location of the project activity clearly defined, including details of the physical location and information allowing the unique identification of this CPA project activity(ies)? | /03/         | DR/<br>CC/I | <p>The boundary of SSC-CPA is stated as political boundary of India ( in specific and generic CPA) and the geographical area of PoA is also political boundary of India.</p> <p>Project participant is requested to explain the geographical boundary of CPA (specific and generic) and also explain in which states the lamps in this CPA 1 will be sold.</p>   | CAR<br>19          | OK           |
| A 4.1.3 Are the details of Name/contact details of the entity/individual  | /03/         | DR          | Detail of contact person are stated as Mr. Mayank  |                    | OK           |

<sup>9</sup> CPA implementers can be project participants of the PoA, under which the CPA is submitted, provided the name is included in the registered PoA.

<sup>10</sup> It is assessed whether the project qualifies as small- scale CDM Programme Activity

| Checklist Question   | Ref. | MoV*  | Comments   | Draft Concl.         | Final Concl. |
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| responsible for the CPA included?  |      |       | Sekhsaria of Greenlight Planet India Private Limited.  |                      |              |
| <b>A.4.2.Duration of the CPA:</b>  |      |       |  |                      |              |
| A.4.2.1.Is the starting date of the CPA clearly defined and justification provided for considering that as the start date?     | /03/ | DR/CC | Start date is provided as date of sale of first lamp of the CPA. The start date needs to be justified. As per data provided, CPA Implementer has already starting selling lamps from April 2011 onwards, however these lamps are not marked with CDM unique identification. Project participant is requested to provide justification why CDM is required if already they have sold lamps without CDM. | <del>CAR</del><br>20 | OK           |
| A.4.2.2.Is the Operational lifetime of the CPA defined? <sup>11</sup>  | /03/ | DR    | Operational lifetime is stated as 21 years. Project participant is requested to provide supporting documents for operational lifetime.   | <del>CL-9</del>      | OK           |
| <b>A.4.3.Choice of the crediting period <sup>12</sup></b>  |      |       |  |                      |              |
| A.4.3.1.Is the starting date of the crediting period mentioned in dd/mm/yyyy format?   | /03/ | DR    | The starting date of crediting period is stated as 01/01/2012 or Date of inclusion of the CPA in the PoA whichever is later. The date needs to be corrected to a reasonable and realistic date   | <del>CAR</del><br>21 | OK           |
| A.4.3.2.Is the length of the crediting period,( first crediting period if the choice is renewable crediting period) mentioned? | /03/ | DR    | Renewable crediting period is chosen with length of first crediting period as 7 years.   |                      | OK           |
| <b>A.4.4.Estimated amount of emission reductions</b>   |      |       |  |                      |              |
| A.4.4.1Is the estimated amount of emission reduction during the crediting period provided in tabular format?                   | /03/ | DR/CC | The emission reductions are provided in tabular format. Annual average emission reductions are 20,000 tCO <sub>2</sub> e.  |                      | OK           |
| <b>A.4.5. Public funding in the CPA</b>  |      |       |  |                      |              |

<sup>11</sup> Documentary and authentic evidence

<sup>12</sup> Renewable or Fixed Crediting period

| Checklist Question  | Ref.         | MoV*      | Comments   | Draft Concl. | Final Concl. |
|---|--------------|-----------|--|--------------|--------------|
| A 4.5.1 Are the details of the public funding of the CPA provided and is it consistent with information in Annex 2                                  | /03/         | DR        | It is stated that there is no public funding for CPA. Project participant is requested to clarify mode of funding with evidence  | CAR 22       | OK           |
| <b>A.4.6. Confirmation that CPA_ is neither registered as an individual CDM project activity nor is part of another Registered PoA</b>              |              |           |  |              |              |
| A 4.6.1 Is it demonstrated that the proposed CPA is neither registered as an individual CDM project activity nor is part of another Registered PoA: | /03/         | DR        | It is stated in CPA-DD that the small-scale CPA is neither registered as an individual CDM project activity nor part of another registered PoA.<br><br>However it is not transparent on how the CME has confirmed the same before inclusion of the CPA in the PoA. The generic CPA also has not included the steps to be followed before such CPA inclusion.   | CAR 23       | OK           |
| <b>A.4.7.SSC – Information to confirm that the proposed small-scale CPA is not a de-bundled component</b>   |              |           |  |              |              |
| A 4.7.1 SSC – It is demonstrated that the proposed CPA is not a de-bundled component of a large scale activity?                                     | /03/<br>/05/ | DR/<br>CC | It is stated in CPA-DD that if each independent subsystem/ measures included in the CPA of a PoA is <i>not greater than 1%</i> of the small scale threshold defined by the methodology applied, then that CPA of PoA is <i>exempted</i> from performing de-bundling check. The threshold defined by the small –scale methodology AMS III.AR is the same as that for all Type III project activities i.e., emissions reductions of less than or equal to 60 kt CO <sub>2</sub> equivalent annually. The default emission factor defined in paragraph 13 of the methodology is 0.08 tCO <sub>2</sub> e per project lamp/year which is less than 1% of 60 kt CO <sub>2</sub> e as well as 20 kt CO <sub>2</sub> e if compared with micro-scale project limit. Hence, <i>the program is exempted from carrying out a de-bundling check.</i><br><br>Project participant has not used the latest version | CAR 40       | OK           |

| Checklist Question | Ref. | MoV* | Comments   | Draft<br>Concl. | Final<br>Concl. |
|--------------------|------|------|--|-----------------|-----------------|
|                    |      |      | of Guidelines on assessment of de-bundling for<br>SSC project activities |                 |                 |

| Checklist Question  | Ref.         | MoV*        | Comments  | Draft Concl. | Final Concl. |
|---|--------------|-------------|---|--------------|--------------|
| <b>B. Eligibility CPA and Estimation of emissions reductions</b>  |              |             |   |              |              |
| <b>B.1. Title and reference of the Registered PoA to which CPA is added</b>   |              |             |   |              |              |
| B 1.1 Is the title and reference of the Registered PoA to which CPA is added is indicated transparently?                      | /01/         | DR          | The title of PoA is stated as Greenlight Solar PV Lighting India dated 01/10/2011 and version: 01. The PoA is not registered  |              | OK           |
| <b>B.2. Justification of why the CPA is eligible to be included in the Registered PoA</b>                                     |              |             |   |              |              |
| B2.1 Is the Justification of why the small-scale CPA is eligible to be included in the Registered PoA provided transparently? | /01/<br>/05/ | DR/<br>CC/I | <p>Following is stated in section B.2 of CPA-DD regarding inclusion of CPA</p> <ul style="list-style-type: none"> <li>• The proposed SSC-CPA and all units installed under it are within the geographical boundary of India.</li> <li>• The technology used under the proposed SSC-CPA consists of solar LED lighting system.</li> <li>• Solar LED lamps included in the proposed SSC CPA comply with applicability criterion of meth AMS-III.AR version 01</li> <li>• The total number of all lamps installed under the CPA are limited to those that result in emissions reductions of less than or equal to 20 kt CO2 equivalent annually</li> <li>• The SSC-CPA is checked and approved by the CME before being included under the PoA.</li> <li>• The SSC-CPA does not result in diversion of ODA.</li> <li>• The SSC-CPA is developed and implemented by GLP that has signed the standard contractual agreement with the CME to participate in the PoA; such agreement guiding the transfer of the emission reduction rights to the CME.</li> </ul> | CAR-5        | OK           |

| Checklist Question | Ref. | MoV* | Comments  | Draft Concl. | Final Concl. |
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|                    |      |      | <ul style="list-style-type: none"> <li>• The SSC-CPA applies the small-scale methodology AMS-III.AR, version 01.</li> <li>• Each of the independent subsystems/measures in the CPA achieves less than 600 tCO<sub>2</sub>e reduction per year</li> <li>• End users of the subsystems or measures are households/communities/SMEs.</li> </ul> <p>Further it is not transparent on how the managing entity has ensured compliance to the conditions before inclusion of the CPA.</p> <p>The conditions for double counting of emission reductions has not been included. The eligibility criteria does not include conditions to check start date with documentary evidence. Also eligibility criteria does not includes to how it will be ensured that solar chargeable LED lamps replace fossil fuel lamps.</p> |              |              |

| Checklist Question  | Ref.         | MoV*      | Comments   | Draft Concl.         | Final Concl. |
|---|--------------|-----------|--|----------------------|--------------|
| <b>B.3.Assessment and demonstration of additionality of the CPA, as per eligibility criteria listed in the Registered PoA</b>   |              |           |  |                      |              |
| B3.1 Is an Assessment and demonstration of additionality of the small-scale CPA , as per eligibility criteria listed in the Registered PoA included transparently?  | /03/<br>/05/ | DR/<br>CC | It is stated in section B.3 of CPA –DD that In accordance with section E.5.2 of the SSC-PoA-DD, the proposed CPA is considered additional as:<br>i. It is a Type III micro-scale project activity with no more than 20 ktCO <sub>2</sub> e of emissions reductions per year<br>ii. Each of the independent subsystems/measures in the project activity achieves less than 600 tCO <sub>2</sub> e reduction per year<br>iii. End users of the subsystems or measures are households/communities/SMEs. |                      | OK           |
| B 3.2 Does the PDD follow all the steps required in the methodology to determine the additionality? (Is an approved additionality tool required / used?)  | /03/<br>/06/ | DR/<br>CC | Project participant has not detailed the Guidelines used to demonstrate additionality in CPA-DD  | <del>CAR</del><br>24 | OK           |
| B 3.3 Is the discussion on the additionality clear and have all assumptions been conservative, supported by transparent and documented evidence for all steps?  | /03/<br>/06/ | DR/<br>CC | Please refer section B 3.1 above   |                      | OK           |
| B 3.4 Is it demonstrated / justified that the project activity itself is not a likely baseline scenario?  | /03/<br>/06/ | DR/<br>CC | Please refer section B 3.1 above   |                      | OK           |
| B 3.5 If the starting date of the project activity is before 2 August 2008, is it demonstrated that CDM was seriously considered as per the guidance for CDM consideration?<br><i>If starting date is on or after 2 August 2008, has the pp informed the UNFCCC/ DNA about the CDM project activity and is it acknowledged from them?</i> | /01/         | DR        | Prior consideration is not a requirement for PoA and CPA   |                      | OK           |
| B 3.6 Is the above evidence based on official, legal and / or other corporate document that was available at, or prior to, the start of the project activity?   | /01/         | DR        | Prior consideration is not a requirement for PoA and CPA   |                      | OK           |
| B 3.7 If investment analysis has been used to demonstrate the additionality of the proposed CDM project activity, Is it demonstrated  | /01/,        | DR        | Emission reductions from the project are not more  |                      | OK           |



| Checklist Question   | Ref.         | MoV*      | Comments  | Draft Concl. | Final Concl. |
|--|--------------|-----------|---|--------------|--------------|
| that the proposed CDM project activity would not be:<br>(a) The most economically or financially attractive alternative; or<br>(b) Economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs); were provided?<br>© Is the bench mark selected appropriate and justification provided?<br>(d) Is the investment analysis compliant to the guidance on Assessment of Investment analysis? | /06/         |           | than 20 ktCO <sub>2</sub> e so it falls under micro scale project activities. Project participant has used Guidelines for demonstrating additionality for micro scale project activities for demonstrating additionality. Hence Investment analysis has not been used to demonstrate additionality  |              |              |
| B. 3.8 If the demonstration of the barriers as per the guidance by the EB to demonstrate barriers and supported by proper evidences?   | /01/<br>/06/ | DR        | Emission reductions from the project are not more than 20 ktCO <sub>2</sub> e so it falls under micro scale project activities. Project participant has used Guidelines for demonstrating additionality for micro scale project activities for demonstrating additionality. Hence Barrier analysis has not been used to demonstrate additionality |              | OK           |
| <b>B.4. Description of the sources and gases</b>   |              |           |   |              |              |
| B4.1 Is a description of the sources and gases included in the project boundary?   | /03/         | DR/<br>CC | Project boundary is not detailed in section B.4 of CPA-DD   | CAR<br>25    | OK           |
| B 4.2 Is a description of the location of the CPA included and is it proved that the CPA is located within the geographical boundary of the registered PoA?  | /03/         | DR/<br>CC | It is not stated in section B.4 of CPA-DD that CPA is within geographical boundary of PoA and nor any proof of same is included   | CAR<br>25    | OK           |
| <b>B.5. Emission reductions<sup>13</sup></b>   |              |           |   |              |              |
| <b>B.5.1.Data and parameters that are available at validation</b>  |              |           |   |              |              |
| B 5.1.1 Are all the data & parameters that are available at validation properly referenced?  | /03/<br>/28/ | DR/<br>CC | Parameter DV (default emission factor per project lamp) , GF (grid factor) and Dby (Dynamic baseline factor) are detailed in section B 5.1 of CPA-DD  |              | OK           |
| <b>B.5.2.Ex-ante calculation of emission reductions:</b>   |              |           |   |              |              |
| B 5.2.1 Are the project, baseline and leakage emissions and emission reductions been properly explained and determined using the same appropriate methodology and conservative assumptions?  | /03/<br>/05/ | DR/<br>CC | Project emissions are zero as per methodology as lamps are charged with renewable energy systems. The emission reductions are calculated  |              | OK           |

<sup>13</sup> It is assessed whether the procedure for calculating project emissions according to the methodology and whether the argument for the choice of default values applied are justified

| Checklist Question   | Ref.                 | MoV*      | Comments   | Draft Concl. | Final Concl. |
|--|----------------------|-----------|--|--------------|--------------|
|  | /28/                 |           | as per methodology. Option 1 of LED effective useful life is considered in CPA. The emission reductions are $Dv \times GF \times DBy$ which is equal to 0.08tCO <sub>2</sub> e per lamp. The project participant is proposing to sell 250,000 lamps per year so emission reduction work out to be 20,000 tCO <sub>2</sub> e per year and using option 1, the lamps will have useful life of two years so next batch of lamps will be sold in 3, 5 and 7 years. |              |              |
| B 5.2.2 Does the proposed project clearly state the used equations for the calculation of emission reductions , as given by the approved / applied methodology?  | /03/<br>/05/<br>/28/ | DR/<br>CC | The equations for calculating emission reductions are in line with methodology   |              | OK           |
| B 5.2.3 Are the demonstration / justification for the chosen default values appropriate and conservative?  | /03/<br>/05/<br>/28/ | DR/<br>CC | The default values are taken as per methodology and found to be correct. DV is taken as 0.8tCO <sub>2</sub> e per project lamp and Gfy and Dby are taken as 1 in line with methodology   |              | OK           |
| <b>B.5.3.Summary of the ex-ante estimation of emission reductions</b>  |                      |           |  |              |              |
| B 5.3.1 Are all <i>ex-ante</i> estimation of emission reductions summarized in tabular format for all years of the crediting period?   | /03/<br>/28/         | DR/<br>CC | Annual average ex-ante emission reductions are 20000 tCO <sub>2</sub> e. Emission reductions are summarized in tabular format in CPA-DD  |              | OK           |
| <b>B.6.Application of the monitoring methodology and description of monitoring plan</b>  |                      |           |  |              |              |
| <b>B.6.1.Description of the monitoring plan</b>  |                      |           |  |              |              |
| B 6.1.1 Specific information on how the data and parameters that need to be monitored would actually be collected during monitoring for the project activity is provided? ( <i>measurements after the implementation of the project activity should be included here</i> ) | /03/<br>/05/         | DR/<br>CC | <p>The parameter <math>Of_{y,i,j}</math> (Percentage of project lamps distributed to end users that are operating and in service in year y) is not clear. Project participant may explain why measurement method and QA/QC procedure as it states that sampling size will be determined as per Annex 4 whereas in section B 5.2 it is stated that option 1 will be used.</p> <p>Further details will be cross-checked during site visit.</p>                   | CAR<br>26    | OK           |

| Checklist Question  | Ref.         | MoV*      | Comments  | Draft Concl. | Final Concl. |
|---|--------------|-----------|---|--------------|--------------|
| B 6.1.2 Are all the parameters and its sources of data reliable, specified and documented in a (proper table) tabular form?   | /03/<br>/05/ | DR/<br>CC | Please refer section B 6.1.1 for parameter Ofy,i,j. The other parameter i.e number of project lamps distributed and sales information of the lamp are described adequately in section B 6.1 of CPA-DD in tabular format.  | CAR<br>26    | OK           |
| B 6.1.3 Where data or parameters are supposed to be measured, are measurement methods and procedures, including a specification of which accepted industry standards or national or international standards will be applied, specified?   | /03/<br>/05/ | DR/<br>CC | Customer registration database will record number of lamps distributed to end users and lamp sales. Please refer section B 6.1.1 for parameter Ofy,i,j.   | CAR<br>26    | OK           |
| B 6.1.4 Are the measuring instruments / equipments, measurement methods, accuracy and interval, measurement responsible(s) and calibration procedures specified?  | /03/<br>/05/ | DR/<br>CC | There are no measurement equipments involved as data that are monitored are number of lamps sold and sales information of lamps Please refer section B 6.1.1 for parameter Ofy,i,j.   | CAR<br>26    | OK           |
| B 6.1.5 Are the QA / QC procedures applied described and complying with existing good practice?<br>(The parameters related to the performance of the project will be monitored using meters and standard testing equipment, which will be regularly calibrated following standard industry practices) | /03/<br>/05/ | DR/<br>CC | Please refer section B 6.1.1 for the parameter Ofy,i,j .  | CAR<br>26    | OK           |
| B 6.1.6 Are the operational and project management details properly described with the responsibility, authority and reporting structure etc..?   | /03/<br>/05/ | DR/<br>CC | Responsibilities are not clear. Project participant may explain why information with respect to survey is mentioned in section B 6.1 as the CPA is using option 1 for determining effective useful life of lamps.<br><br>Further details will be cross-checked during site visit. | CAR<br>26    | OK           |
| B 6.1.7 Is it described on the possible uncertainties and the data adjustments if any needed in case of any uncertainty /emergency situations?  | /03/<br>/05/ | DR/<br>CC | Project participant has not described possible uncertainties and procedures to be followed in case of emergency situations  | CAR<br>26    | OK           |
| <b>C.1. Environmental analysis</b>  |              |           |   |              |              |
| C.1.1 Is it indicated transparently on the level at which the environmental analysis is carried out?  | /01/         | DR        | Environmental analysis is carried out at PoA level  |              | OK           |
| C 1.2 Is the selected level of environmental analysis properly justified?   | /01/         | DR        | It is justified in PoA-DD. Please refer section C.1   |              | OK           |

| Checklist Question   | Ref.          | MoV*      | Comments  | Draft<br>Concl. | Final<br>Concl. |
|--|---------------|-----------|---|-----------------|-----------------|
|  |               |           | of Table 2A.  |                 |                 |
| <b>C.2. Documentation on the environmental analysis</b>  |               |           |   |                 |                 |
| C 2.1 Is it documented transparently on the environmental analysis carried out for the programme/project and are the transboundary impacts considered in the analysis? | /01/          | DR/<br>CC | Please refer section C 1.1 above  |                 | OK              |
| C 2.2 Are the identified environmental impacts been addressed in the programme design?   | /01/          | DR/<br>CC | Please refer section C 1.1 above  |                 | OK              |
| C 2.3 Does the programme comply with the environmental legislation in the host country?  | /01/,<br>/27/ | DR/<br>CC | Please refer section C 1.1 above  |                 | OK              |
| <b>C.3.Requirement as per host party laws / regulations</b>  |               |           |   |                 |                 |
| C 2.4 Is it required to conduct the EIA required for the CPA, included in the POA in accordance with host party laws/ regulations?                                     | /01/          | DR/<br>CC | EIA is not required for the project. Please refer section C3.1 of Table 2A above  |                 | OK              |
| <b>D. Stakeholders' comments</b>   |               |           |   |                 |                 |
| D.1.Is it indicated transparently if the consultation is carried out ar PoA / CPA level?   | /01/          | DR/<br>CC | Stakeholder consultation is carried out at PoA level.   |                 | OK              |
| D.2.Is it described transparently on how the stakeholder comments are invited and compiled? ( mode of communication, method / media used , time given etc )            | /01/          | DR/<br>CC | Please refer section D.1 above  |                 | OK              |
| D.3Is a summary of the comments received transparently discussed in DD?  | /01/          | DR/<br>CC | Please refer section D.1 above  |                 | OK              |
| D.4Is it reported on how due account is taken for the comments received about the programme / project?   | /01/          | DR/<br>CC | Please refer section D.1 above  |                 | OK              |
| Annex 1<br>Are the details of contact information on Coordinating/managing entity and participants in the programme of activities provided in the tabular format?      | /01/          | DR/<br>CC | Detail of contact information on CME and project participant are provided in Annex 1 in tabular format which is correct.  |                 | OK              |
| Annex 2<br>Are the details of public funding if any is provided ?  | /01/          | DR/<br>CC | It is stated that there is no public funding. Please refer section A 4.5.1 above  | CAR<br>22       | OK              |
| Annex 3<br>Are the details of baseline information provided and is complete?   | /01/<br>/03/  | DR/<br>CC | Reference is provided to section E.4 of PoA DD in Annex 3 of CPA-DD. Project participant is requested to clarify the same | CL-10           | OK              |
| Annex 4<br>Are the details of monitoring information provided and is complete and  | /03/          | DR/<br>CC | Project participant is requested to clarify the information provided in Annex 4 of CPA-DD. It is                          | CL-14           | OK              |

| Checklist Question | Ref. | MoV* | Comments  | Draft<br>Concl. | Final<br>Concl. |
|--------------------|------|------|---|-----------------|-----------------|
| appropriate?       |      |      | stated that this is only applicable for CPAs using option II for determining useful lifetime of project lamp. |                 |                 |

**TABLE 3 RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS**

| Corrective action and/ or clarification requests  | Reference to Table 2                 | Response by project participants  | Validation Conclusion  |
|---|--------------------------------------|---|--|
| <p>CAR 1</p> <p>Complete details of the operating and implementing framework are not included in PoA DD</p> <p>Complete details of policy\measures are not stated in the PoA-DD. Moreover technological benefits are not included in section A.2 of PoA-DD.</p> <p>Complete name of Annex I party is not mentioned in section A.3 of PoA DD</p> | <p>Table 2A, A 2.1, A 2.2, A 2.3</p> | <p>Section A.2 of the PoA-DD has been revised to include details of policy\measures and technological benefits of the PoA.</p> <p>Section A.3 of PoA DD has been revised to include the complete name of Annex I party.</p> <p>Details of the operating and implementing framework have been suitably revised in section A.2 of PoA DD.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>The Operating and implementing framework for the PoA is described as under:</p> <p><b>J.P. Morgan Ventures Energy Corporation(JPMVEC)</b> is the coordinating/managing entity (CME) for this PoA. The purpose of the proposed PoA is dissemination of solar chargeable LED lamps to provide basic lighting service to households using fossil fuel based lighting systems in India, thereby replacing the fossil fuel based lighting systems currently in use in households.</p> <p><b>Greenlight Planet India Private Limited (GLP)</b> will act as the on ground expert and is also implementer of the first CDM program activity (CPA). GLP is in the business of manufacturing and marketing of solar lamps and has put-in-place an</p> | <p>Details of policy\measures were found mentioned in the revised PoA-DD. Technological benefits were found stated in section A.2 of the revised PoA-DD.</p> <p>Complete name of Annex I party (United Kingdom of Great Britain and Northern Ireland) has been mentioned in section A.3 of revised PoA DD.</p> <p>However, complete details have still not been provided on operating and implementing framework. Please clarify?</p> <hr/> <p>It is stated in revised PoA DD that subsequent CPAI may evolve their own framework. Project participant is requested to clarify that same. CPAs have to adhere to the framework described in PoA DD.</p> <hr/> <p>The PoA DD clearly states that CPAs must adhere to the general operating and implementing framework as mentioned in the section A.2 of the revised PoA DD.</p> <p>Hence the <b>CAR is closed.</b></p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants   | Validation Conclusion |
|--|----------------------|--|-----------------------|
|  |                      | <p>innovative distribution network for its marketing and distribution in India that ensures a wider reach in the rural market. It will liaise with this distribution network to collect information necessary for monitoring of its CPAs.</p> <p>Additional CPAs may associate with the PoA during its lifetime. These CPAs may or may not act as project participants depending upon the agreement between the CME and corresponding CPA. Subsequent CPAs may evolve their own framework for the sales of lamps under the PoA but must provide CME with the data necessary for monitoring.</p> <p>The same is detailed in the revised PoA-DD.</p> <p><b>Reply from PP: 13 Dec 2012</b></p> <p>Additional CPAs may associate with the PoA during its lifetime. Each of these CPAs may have their own characteristic network to facilitate effective marketing and distribution of the project lamps. Further, the network to collect the monitored data from the end users is also a characteristic of the marketing and distribution chain put in place by the CPA implementer. Such details would be described in the specific CPA-DD.</p> <p>However, overall, each CPA implementer is mandated to adhere to the general implementing framework described in the PoA-DD ie, the CPA implementer shall</p> |                       |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants  | Validation Conclusion |
|--|----------------------|---|-----------------------|
|  |                      | <p>collect the monitoring data through its monitoring and distribution network and share the same with the CME as per the monitoring plan described in the PoA-DD.</p> <p>Since the exact details regarding the marketing, distribution &amp; monitoring network of the future CPA implementers are not known, they cannot be described in the PoA-DD. They will however, be discussed in the specific CPA-DD in section A.4 (See section “Operating structure of the CPA”)</p> |                       |



| Corrective action and/ or clarification requests   | Reference to Table 2                             | Response by project participants  | Validation Conclusion   |
|--|--|---|---|
| <p>CAR 2</p> <p>Project participants are requested to provide approval from DNA from India and United Kingdom</p>  | <p>Table 2A, A 2.3, A 4.3.1, A 4.3.2</p>         | <p>The LoAs are being applied for and would be made available to the DOE as soon as received.</p> <p><b>Reply from PP: 13 Dec 2012</b><br/>The LoA from DNA of India and the United Kingdom of Great Britain and Northern Ireland have been received and are being submitted.</p>   | <p>The project participant is requested to provide host country approval from DNA of India and United Kingdom.</p> <hr/> <p>The Host country LoA dated (22/11/2012) issued by DNA of India and Annex 1 LoA dated (13/12/2012) issued by DNA of United Kingdom has been received from PP. Hence the <b>CAR is closed</b>.</p>  |
| <p>CAR 3</p> <p>It is not indicated section A.3 of PoA DD whether project participants are public or private entity</p>  | <p>Table 2A, A 3.2</p>                           | <p>JPMVEC and GLP both are private entities. Section A.3 of the PoA-DD has been revised accordingly.</p> <p><b>Reply from PP: 13 Dec 2012</b><br/>The project participants to PoA have been revised as EcoSecurities India Pvt. Ltd. and J.P. Morgan Ventures Energy Corporation (both private entities) in light of amended ERPA.</p>  | <p>The CAR is closed.</p> <hr/> <p>The CAR was reopened as there was a change in the project participants to the PoA. The project participant has indicated in section A.3 of revised PoA-DD that EcoSecurities India Pvt. Ltd. and J.P. Morgan Ventures Energy Corporation are private entities. Hence the <b>CAR is closed</b></p>  |
| <p>CAR 4</p> <p>Map of geographical boundary is not provided. It is not transparent that the programme's spatial boundary is covering all states and union territories of India.</p> <p>The project reduces GHGs by replacing fossil fuel (46Kerosene) lamps by solar chargeable LED lamps. However the system boundaries are not stated in detail in the PoA DD.</p> <p>The PoA DD is not transparent on how the spatial boundaries of the individual CPAs are defined. It is not clear how each CPAs will be distinguished</p> | <p>Table 2A, A 4.1.2.1, A 4.1.2.2, A 4.1.2.3</p> | <p>Map of geographical boundary of the PoA has been provided. Section A.4.1.2 of the PoA-DD has been revised accordingly to specify the inclusion of all states and union territories of India within the geographical boundary of the PoA.</p> <p>Being a micro-scale PoA, the number of installations in each CPA shall be limited to those that generate 20ktCO<sub>2</sub>e per year (250,000 lamp units). These units may be spread across various states in India hence the spatial boundary of CPA has also been limited to geographical boundary of India. In all cases, the CPA boundary shall be within the geographical boundary of PoA (India).</p> | <p>As the geographical boundary of PoA and CPA are political boundary of India, the project participant is requested to further clarify how various CPAs will be distinguished from each other. The project participant is requested to clarify whether unique serial number of lamps will be part of CPA-DD.</p> <hr/> <p>Map of Geographical boundary has been provided in revised PoA DD and it is found to be correct. Also it has been stated in revised PoA DD that project boundary also includes all the sites where lamp has been sold. The project boundary</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants   | Validation Conclusion  |
|--|----------------------|--|--|
|  |                      | <p>Each CPA shall have a unique title differentiating it with the other CPAs. Further, lamps in each CPA, through their serial numbers are uniquely identifiable. Thus, each CPA can be distinguished from any other CPA.</p> <p>The spatial boundary of each CPA shall be defined in Section A.4.1.2 of the corresponding CPA-DD only.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>The project boundary has been updated in section E.3 of the PoA-DD. As per the applied meth, the project boundary is the physical, geographical site where each project lamp is utilized and if the project lamps are charged by a renewable energy system then the project boundary includes the physical, geographical site of the renewable energy system. Therefore, for the proposed PoA, the project boundary includes all the sites where the project lamps are sold.</p> <p>Each CPA shall have a unique title differentiating it with the other CPAs and shall have a unique set of lamps. Each lamp shall have a Unique serial number used to distinguish lamps belonging to one CPA from those belonging to other CPAs. At present, the lamp serial numbers cannot not be a part of the specific CPA-DD since all lamps that would be included in the CPA (a maximum of 250,000) have not been sold</p> | <p>is in line with the methodology. Project participant has clarified that each lamp has a unique serial number and project participant is maintaining a database with lamps sold. The database of lamps sold till Feb 2012 was provided to the validation team. It was observed from data base that unique serial number of lamps is mentioned.</p> <p>The project participant has also clarified that since all the lamps of the CPA1 have not been sold so far, their details are not included in the specific CPA-DD and they would be available at the time of verification. Hence this CAR is converted to FAR 1 and during first verification, serial number of lamps belonging to the specific CPA DD shall be checked by the verifying DoE.</p> <p>Hence the <b>CAR is closed</b> and converted in <b>FAR1</b>.</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2                           | Response by project participants   | Validation Conclusion  |
|---|--|--|--|
|   |  | so far. The CPA implementer is maintaining a database which contains serial numbers of lamps that would be included in the CPA. This database would be made available at the time of verification.   |  |
| <p>CAR 5</p> <p>Guidelines for Demonstrating additionality of micro scale project activities is not the latest Guidelines.</p> <p>Further it is not transparent on how the managing entity will monitor compliance to the conditions before inclusion of any CPA.</p> <p>The eligibility criteria defined has not taken in to account the conditions for double counting of emission reductions. The eligibility criteria does not include conditions to check start date with documentary evidence. Also eligibility criteria does not includes to how it will be ensured that solar chargeable LED lamps replace fossil fuel lamps.</p> | Table 2A, A 4.1.2.4, A 4.2.3, A 4.2.3.1, B 2.1 | <p>The PoA-DD has been revised to use version 3 of the Guidelines For Demonstrating Additionality of Micro-scale Project Activities (See section A.4.3 of the revised PoA-DD). The criteria for micro-scale CPA to be deemed additional have been included in the section A.4.2.2 of the revised PoA DD i.e. <i>Eligibility criteria for inclusion of a CPA in the PoA of the PoA-DD</i>. Therefore, it shall be ensured that all CPAs included in the PoA comply with the aforesaid guidelines.</p> <p>Double counting in the PoA shall be avoided by each lamp having a logo of the CAPI and a unique serial number. The same has been added as an eligibility criteria in section A.4.2.2. of the revised PoA-DD.</p> <p>Eligibility criteria for a CPA to have a start date after the start of validation of PoA has been added in section A.4.2.2. of the revised PoA-DD.</p> <p>As discussed in section A.2 of the PoA DD, the PoA aims to target those households who use kerosene as primary source of lighting (~65 million in India as per NSSO 2010). Further, section E.4 of</p> | <p>The latest version of micro-scale additionality has now been applied in the revised PoA-DD.</p> <p>The project participant is requested to further clarify how managing entity will monitor compliance to conditions before inclusion of CPA.</p> <p>Project participant is requested to clarify whether unique serial number of lamps will be part of CPA-DD.</p> <p>The eligibility criteria does not include conditions to check start date with documentary evidence.</p> <p>Project participant is requested to further clarify how it will be ensured that solar chargeable LED lamps replace fossil fuel lamps.</p> <p>Compliance with AMS III.AR. has been added as inclusion eligibility criteria in the revised PoA DD.</p> <p>Provision for avoiding double counting has been found mentioned in the revised</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants   | Validation Conclusion   |
|--|----------------------|--|---|
|  |                      | <p>the revised PoA DD also substantiates that kerosene is the most common fuel used for lighting in portable lamps in rural India where the programme shall be largely based. Thus, the programme is deemed to replace fossil fuel based lamps only. Please refer revised PoA-DD section A.2 and E.4 for more details.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>All eligibility conditions are under the control of CME. The CME can therefore ensure that each CPA adheres to the eligibility criteria listed in section A.4.2.2 of the PoA-DD.</p> <p>The CME shall limit the CPAs to be included under the PoAas only those that involve installation of solar LED lamps eligible under AMS III. AR version 01, and has a maximum of 250,000 lamps. Further the compliance to the inclusion eligibility criteria will also be checked by the DOE during validation of each subsequent CPA prior to requesting inclusion under the PoA.</p> <p>Please refer to CAR 4 for an explanation of non-inclusion of serial numbers in the CPA-DD.</p> <p>Section A.4.2.2. of the PoA-DD has been revised to include criteria to check start date with documentary evidence. The start date of the CPA shall be the date of sale of the first lamp included in the CPA. This can be cross-checked by the validating DOE during validation of the</p> | <p>PoA-DD.</p> <p>Eligibility criteria for checking the start date of CPA (to be after the start of validation of PoA) has been added in the revised PoA-DD. However, it is mentioned that by virtue of target customer group that the programme results in replacement of fossil fuel based lamps. This is not clear as the literature cited shows that kerosene is the not the prevalent source of lighting in certain states in India for eg: the percentage of household using kerosene in NCT of Delhi is less than 1% whereas the PoA boundary is India..</p> <hr/> <p>The PoA boundary is fixed as India, which is deemed appropriate as the lamps may be sold in various parts of India in future. Also, the PoA-DD has been revised to state that CPA boundary shall be determined for each CPA independently at the CPA level.</p> <p>The Boundary of CPA 1 has been reduced from India to the states of Uttar Pradesh, Bihar, Jharkhand, Odisha and Assam. The % of households using kerosene as primary source of lighting in each of these individual states can be deemed as common practice with an overall ~66% households using kerosene as primary source of lighting in the CPA region. Thus, it is ensured as per para 6(a) of the methodology AMS III.AR version 03, that the CPA shall ensure</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants   | Validation Conclusion  |
|--|----------------------|--|--|
|  |                      | <p>specific CPA.</p> <p>It has already been clarified in the PoA-DD and CPA-DD in relevant sections that the most common source of lighting in portable lamps in India is kerosene. It is a common practice in India to use fossil fuel for lighting as concluded in section E.4 of the PoA-DD. Such users are the target users for the programme. Thus, it is substantiated using published literature/official data as specified in Para 5(a) of the methodology and by virtue of target customer group that the programme results in replacement of fossil fuel based lamps.</p> <p><b>Reply from PP: 13 Dec 2012</b></p> <p>Please refer to Para 5(a) of the methodology which states that the baseline can be established through documentation of the common practice of fuel usage for lighting in the project region.</p> <p>In India a total of ~77 million households in India (including Urban and Rural areas both) use kerosene as their primary source of lighting. In the urban areas alone, as many as 5 million households depend upon kerosene and thus, present a potential market for the outreach of solar LED technology. Thus, use of kerosene is very much prevalent across India. It is well documented that apart from the rural population, kerosene is also heavily relied upon by the urban poor to</p> | <p>replacement of fossil fuel based lamps.</p> <p>Further as this has been developed as an inclusion eligibility criteria, as mentioned in the section A.4.2.2 of the revised PoA-DD, hence the same is also ensured for the PoA.</p> <p>Hence the <b>CAR is closed</b>.</p> |

| Corrective action and/ or clarification requests   | Reference to Table 2 | Response by project participants  | Validation Conclusion  |
|--|----------------------|---|--|
|  |                      | <p>meet their lighting needs<sup>14</sup>.</p> <p>Please refer to section E.4 of the PoA-DD which mandates that the use of kerosene as the baseline fuel for lighting for project lamps shall be demonstrated at the CPA level. This has been developed as a CPA inclusion eligibility criteria in section A.4.2 of the PoA-DD, mandating each CPA to demonstrate that the baseline lamps being replaced by the project directly consume fossil fuel in line with para 6(a) of the methodology.</p> <p>Please refer to section A.2 of the revised specific CPA-DD. The CPA Boundary has been revised from being Pan-India to be restricted to a region across which kerosene is a commonly used fuel for lighting with more than 65.57% of the population replying on kerosene. Please refer to the demonstration of Common practice of kerosene within the CPA boundary in the CPA-DD.</p> |  |
| <p>CAR 6</p> <p>The PoA-DD does not include details that PoA will remain under the limit of small scale throughout the crediting period.</p> | Table 2A, A 4.2.1    | <p>The PoA is not limited in capacity. However, any CPA included in the PoA shall not exceed generation of 20ktCO<sub>2</sub>e per year as per the micro-scale limit. Section A.4.2.2 for the PoA-DD has been revised to specify that each CPA shall remain under the micro-scale threshold of 20,000 ktCO<sub>2</sub>e throughout the crediting period.</p> <p><b>Reply from PP: 01 May 2012</b><br/>The methodology provides a default CO<sub>2</sub></p>   | <p>Project participant is requested to clarify how it will be ensured that each CPA will reduce not more than 20 kt CO<sub>2</sub>e per year. Project participant is requested to clarify the systems that will be built in to monitor sale of lamps for ensuring that CPA remains within the limit of micro scale project activities.</p> |

<sup>14</sup> Improved Lighting for Indian Fishing Communities, ER291-3 Final Report, 2007

| Corrective action and/ or clarification requests | Reference to Table 2                            | Response by project participants   | Validation Conclusion   |
|--|---|--|---|
|  |   | <p>emission factor per lamp. Thus, for 20000 tCO<sub>2</sub>e/annum the number of lamps in a CPA shall be fixed at 250,000. The lamp sales under the PoA would be continuously monitored and recorded by the CPAI. The CPAIs shall share the lamp sales data with the CME on a regular basis to ensure that no more than 250,000 operational lamps are included in any CPA at any point in time during its lifetime.</p> <p>Sales data for the period January-February 2012 has already been shared with the DOE. Refer "Greenlight Planet CDM Jan 2012 Sales Report 07-05-2012.xls" and "Greenlight Planet CDM Feb 2012 Bihar Sales Report.xls"</p> <p><b>Reply from PP: 13 Dec 2012</b></p> <p>Please note that the PoA has been revised from micro scale to small scale PoA as per latest Guidelines for demonstrating additionality of small scale project activities, ver 09.</p> | <p>The project participant has also clarified that since all the lamps of this CPA have not been sold so far, their details are not included in the specific CPA-DD and they would be available at the time of verification. Hence during first verification, serial number of lamps belonging to the specific CPA DD shall be checked by the verifying DoE. This has already been raised as FAR 1 in CAR 4 above.</p> <p>Also the verifying DoE shall check that not more than 250000 lamps have been sold in the specific CPA and hence remains under the limit of micro -scale project activities. This is raised as FAR 2.</p> <p>The CAR is reopened in light of PPs response that the scale of PoA has been revised from micro scale to small scale PoA based on latest Guidelines on the Demonstration of additionality of small scale project activities (v09), as described in the latest PoA DD.</p> <p>Thus, <b>FAR 2</b> is revised as the number of lamps per CPA shall be limited to those generating emission reductions of 60ktCO<sub>2</sub>e per year (equivalent to a maximum of 652,173 lamps per CPA) in accordance with version 03 of AMS III.AR.</p> |
| CAR 7  | Table 2A, A 4.2.2.1, A 4.2.2.2, A 4.2.2.3, A2.4 | The technology employed in the PoA is environmentally safe and sound. The product has been designed after  | The details on technology being environmentally safe and sound and other details regarding technology are not   |



| Corrective action and/ or clarification requests  | Reference to Table 2 | Response by project participants   | Validation Conclusion   |
|---|----------------------|--|---|
| <p>Project participant is requested to provide details on whether programme design engineering reflect good practices.</p> <p>PoA DD does not contain details design specifications of project lamps as per para 6 of methodology AMS III AR ver 1.</p> <p>Project participant is requested to provide detail on whether project uses state of the art technology and whether it involves technology transfer. Further project participant is requested to provide detail whether the technology result in significantly better performance than commonly available technology in the host country.</p> <p>Project participant has not provided details on meeting training and maintenance needs for the project activity.</p> |                      | <p>comprehensive research on consumer needs, behavior and lighting requirements.</p> <p>Since a variety of solar LED lamps may be included in a CPA over a period of time, design specifications of project lamps in a CPA shall be included in the corresponding specific CPA-DD only.</p> <p>Sun King lamp uses its state-of-the-art technology. The lamp is made up of durable polycarbonate shell and an industrial-grade glass-laminated solar panel. The lamp is water resistant and uses industrial-grade photovoltaic technology. The baseline kerosene lamp technology is inferior to the solar based LED lamps in terms of material as well as output.</p> <p>Each pack of lamp contains an information brochure on ways to use, operate and store a lamp unit. These are self explanatory and do not necessitate any training at the level of end user.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>The PoA-DD section A.4.2.1. has been revised to reflect on technology of the programme being environmentally safe. Other details regarding the technology have been included in the CPA-DD.</p> <p>Information on any new lamp models designed and distributed under the PoA shall be included in the corresponding CPD-DD.</p> | <p>mentioned in PoA DD.</p> <p>Inclusion of details on design specification is a requirement of para 6 of methodology AMS III AR ver 1.</p> <p>Project participant is requested to clarify whether there is any technology transfer. Also, project participant is requested to provide detail whether the technology result in significantly better performance than commonly available technology in the host country.</p> <hr/> <p>The solar lantern technology as explained in the revised PoA DD is deemed environmentally safe and state of art technology. The provision for warranty has been included as an eligibility criteria for CPA inclusion (included within the requirement to demonstrate eligibility to AMS III.AR ver 03) in the PoA DD. The CPAI shall therefore carry out a free replacement / repair of the failed lamps as part of warranty / maintenance.</p> <p>It is appropriate to mention the design specifications in the CPA DD depending upon the lamp models in that CPA, However, the PoA DD does not have any format for including technical specifications of the project lamps..</p> <hr/> <p>The format for technical specifications of lamps has been found included in</p> |



| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants   | Validation Conclusion  |
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|  |                      | <p>The PoA is open to a variety of lamps as long as they meet the eligibility criteria of the applied meth. This is also an inclusion criterion in the PoA-DD. However, since different lamp models, with different design specifications, may be included in different CPAs, under the PoA, design specifications as per para 6 are not being included in the PoA-DD. However, each specific CPA-DD shall include all the design specifications, as listed in paragraph 6 of the methodology, of the project lamps included in the CPA. This has been explained in the revised PoA-DD.</p> <p>Please note that each CPA under the PoA, however, would be limited to certain lamp models only, for which the design specifications can be validated at the time of CPA inclusion. Therefore, it is appropriate and realizable to include design specifications of lamps in the CPA-DD only.</p> <p>The generic CPA-DD already includes a section to include the design specifications as required by para 6 of the methodology. Complying with the same, for the first CPA of the PoA, these design specifications have been included in the specific CPA-DD.</p> <p>Therefore, the entire set of documents being submitted for registration of the PoA, is in compliance with the requirements of para 6 of the applied methodology.</p> <p>As new lamp models may be launched/</p> | <p>Appendix 2 of the revised PoA-DD, hence the <b>CAR is closed</b>.</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2   | Response by project participants   | Validation Conclusion   |
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|   |                        | <p>developed in future, information on lamps models that may become a part of the PoA in future is not currently available. The PoA is open to include all lamps that meet the eligibility criteria of the applied methodology, irrespective of technology transfer.</p> <p>The technology currently being employed under the PoA is a state-of-the-art technology and thus, results in significantly better performance than the other commonly available lighting technology in India. The same has been included in section A.4 of the specific CPA-DD.</p> <p>The CPA implementer trains its own staff for catering to repair and maintenance needs under its warranty programme.</p> <p><b>Reply from PP: 13 Dec 2012</b><br/>The format for describing the technical specifications of the project lamps is included as an appendix in the PoA –DD. Further, it is also included in the generic CPA-DD as explained above.</p> |   |
| <p>CAR 8</p> <p>The latest version of Guidelines for demonstrating additionality for microscale project activity is not used in PoA DD.</p> <p>It is required to demonstrate additionality of PoA as a whole in section A4.3 of PoA DD.</p> | Table 2A, A 4.3.5, E.5 | <p>PoA-DD has been corrected to refer the latest version (version 3) of the Guidelines for demonstrating additionality for micro-scale project activity.</p> <p>Since the criteria for a CPA to be deemed additional are already listed as eligibility criteria for inclusion of a CPA in the PoA, therefore, all CPAs included in the PoA would be additional. Thus, it is a</p>  | <p>Project participant has used the latest version 3 of Guidelines for demonstrating additionality for microscale project activity in revised PoA DD. Further, additionality is demonstrated at each CPA level. It is included in eligibility criteria that Each CPA will generate emission reduction equal to or less than 20 kt CO<sub>2</sub>e and each sub-system (lamp) achieve less than 200 tCO<sub>2</sub>e per year (1% of the micro</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2                                 | Response by project participants  | Validation Conclusion   |
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|   |  | <p>characteristic of all the CPAs in the PoA and hence the additionality is demonstrated once at PoA level directly.</p> <p><b>Reply from PP: 13 Dec 2012</b></p> <p>Please note that the PoA has been revised from micro scale to small scale PoA as per latest Guidelines for demonstrating additionality of small scale project activities, ver 09.</p>  | <p>scale guideline threshold) and lamps will be supplied to households. Thus all CPAs that will be included in PoA will have to meet these eligibility criteria and as per Guidelines for demonstrating additionality for micro scale project activities. They will be additional and accordingly additionality is demonstrated at PoA level directly, hence the CAR is closed.</p> <hr/> <p>The CAR is reopened as the scale of the PoA has been found changed from micro-scale to small-scale PoA. It has been checked that the Guidelines for demonstrating additionality of small scale project activities, ver 09 has been appropriately applied and the relevant requirements have been developed as eligibility criteria for inclusion of CPA in the PoA in section A.4.2.2. of the revised PoA DD. Hence, the <b>CAR is closed</b>.</p> |
| <p>CAR 9</p> <p>Detailed roles and responsibilities are not provided in detail in PoA DD. The details on how information will flow from CPA Implementer to CME is not transparently described in PoA DD.</p> <p>It is not clear from the PoA DD as to whether sales information and product characteristics would be recorded at distributor level or dealer level etc.</p> <p>The specific CPA that has been provided does not contain any details of which lamps are part</p> | <p>Table 2A, A 4.4, A 4.4.1, A 4.4.1.1, A4.4.1.2</p> | <p>The responsibility of on-site monitoring lies with the CPAI. The same is included in the corresponding revised CPA-DD (Section B.6.1). The information flow from CPAI to CME is incorporated in the revised PoA-DD (section A.4.4.1).</p> <p>The CPAI shall transfer sales information as well as monitoring survey results (in case of Option 2 only) at regular intervals to CME electronically/hard copy.</p> <p>Sales information and product characteristics will be recorded through a customer registration process. Each</p> | <p>It is stated in PoA DD that CME will be responsible for developing the monitoring plan and procedures. The details of same are not provided in POA DD.</p> <p>The project participant is requested to clarify whether sales information and product characteristics would be recorded at distributor level or dealer level.</p> <p>The project participant is requested to clarify whether each CPA will also have details with respect to unique serial number of solar LED lamps that part of that CPA.</p>  |

| Corrective action and/ or clarification requests   | Reference to Table 2 | Response by project participants   | Validation Conclusion   |
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| <p>of it and it is not clear from PoA DD as to how it will be tracked as to which lamps are part of which CPA.</p> |                      | <p>customer is required to fill the form in hard copy / electronically and the information shall be archived at CPAI office(s).</p> <p>The first CPA of the PoA has not started yet (no lamp sales have started). Therefore at present, no lamps are included in the first CPA.</p> <p>The lamps would carry a unique serial number, which would assist in unique identification of each lamp included in the CPA. For each of the CPAs included in the PoA, a separate database would be maintained. The sales information for each lamp shall be stored with the CPAI/CME.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>The PoA-DD has been revised to refer to the following:</p> <ol style="list-style-type: none"> <li>1. procedures for data collection, archiving, compilation and transfer to CME, (Section A.4.4.1.)</li> <li>2. procedures to avoid double counting, (Section A.4.4.1.)</li> <li>3. roles and responsibilities (section A.4.4.2),</li> <li>4. parameters to be monitored, their measurement methods and procedures (Section E.7.1.)</li> <li>5. QA/QC procedures to be applied (mentioned in the section E.7.1),</li> <li>6. Sampling procedures, wherever applicable, (Appendix 1)</li> </ol> <p>Sales information and product</p> | <p>The project participant has revised the PoA DD and details with respect to roles and responsibilities and information flow from CPAI to CME have been added and found to be adequate. It is also clarified that sales information will be recorded at the retailer level.</p> <p>The project participant has also clarified that since all the lamps of this CPA have not been sold so far, they are not included in the specific CPA-DD and they would be available at the time of verification and during first verification; serial number of lamps belonging to the specific CPA DD will be checked.</p> <p>As this has been raised already as FAR 1 in response to CAR 4, hence this is closed.</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2           | Response by project participants  | Validation Conclusion  |
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|   |                                | <p>characteristics are currently being recorded during the warranty registration process at user/retailer level. This has been included in the revised CPA-DD.</p> <p>The serial numbers cannot be part of PoA-DD or CPA –DD as already explained in response against CAR4 and CAR 5 above.</p>   |  |
| <p>CAR 10</p> <p>Project participant has not used the latest version of Guidelines on assessment of de-bundling for SSC project activities</p>  | Table 2A, A 4.4.1.4, A 4.7.1   | The PoA-DD has been revised to refer to the latest version of <i>Guidance for Determining the Occurrence of Debundling under a Programme of Activities (PoA)</i> .  | Project participant has used latest version 3 of Guidelines on assessment of occurrence of debundling (EB 54 Annex 13) in revised PoA DD, hence the <b>CAR is closed</b> .   |
| <p>CAR 11</p> <p>Monitoring plan does not include a description of a proposed statistically sound sampling method and procedure to be used by designated operational entities for verification of GHG emission reductions by CPAs under the programme. No reference is given to standard for sampling and surveys for CDM project activities and programme of activities and it is not clear whether the sampling plan provided in PoA DD is as per this standard</p> <p>Complete details for CPA using Option 2 for determining effective useful life of lamps are not provided in PoA DD.</p> | Table 2A, A 4.4.2.1, A 4.4.2.2 | <p>The sampling method and procedure for verification to be used by a DoEs is outside the jurisdiction of CME/CPAI and shall be decided by the DoE at the time of verification as deemed appropriate.</p> <p>The sampling plan in the PoA-DD and the CPA-DD has been revised to refer Standard For Sampling And Surveys for CDM Project Activities And Programme of Activities.</p> <p>Details for determining effective useful life of lamps for CPAs using Option 2 have been included in the PoA DD, Appendix 1. The specific CPA submitted uses option 1. In the generic CPA-DD, complete details as per option 2 have also been incorporated.</p> <p><b>Reply from PP: 01 May 2012</b></p> | <p>Please refer to the following sentence in PoA-DD template. The following information (as per requirement of PoA DD template ) is not included in section A 4.4.2</p> <p>'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'</p> <p>Complete details for CPA using Option 2 for determining effective useful life of lamps are not provided in PoA DD as per para 11 of methodology.</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants  | Validation Conclusion  |
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|  |                      | <p>Please refer to the revised PoA-DD, Appendix 1 – which includes the sampling plan for a CPA as per the ‘Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities.</p> <p>Besides, section A.4.4.2 of the PoA-DD has been revised to include 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’. DOEs shall follow the guidance in EB 65, Annex 2 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.</p> <p>Details as per para 11 of the methodology have been included in section E.6.1 of the revised PoA-DD. Further, the details required as per para 11 of AMS.III.AR, version 1 is the same as the design specifications mentioned in para 6. The same has been addressed in the generic CPA-DD by including a section for reporting of these details. These details have been filled in the CPA-DD specific to the first CPA. However, please note that the first CPA uses Option 1 of the meth.</p> <p><b>Reply from PP: 13 Dec 2012</b><br/>Please refer to the revised PoA-DD. Details on a system to avoid double accounting, where each CPA is verified</p> | <p>It is not stated in section A 4.4.2, whether each CPA will be verified or a sampling approach will be used.</p> <hr/> <p>The PoA-DD has been suitably revised to state that each CPA shall be verified. Hence this is closed.</p> |

| Corrective action and/ or clarification requests   | Reference to Table 2         | Response by project participants   | Validation Conclusion  |
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|  |                              | have been added in section A.4.4.2. of the PoA-DD.   |  |
| <p>CAR 12</p> <p>It is stated that there is no public funding to finance the program. Project participant is requested to clarify mode of funding with evidence</p>  | Table 2A, A 4.5.1            | <p>The mode of funding is private equity and does not result in diversion of any ODA.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>Please refer document titled "GLP- Mode of funding" which describes the mode of funding.</p> <p><b>Reply from PP: 13 Dec 2012</b></p> <p>Please refer to the attached document "GLP- Mode of funding" which clarifies the mode of finding to be debt and internal equity (besides the carbon revenues realizable in future). With the phrase, "as on date" GLP wish to clarify that there is no party other then GLP, USA which has a stake in GLP, India. In future, GLP might secure funding from other institutions ensuring no diversion of ODA.</p> | <p>Project participant is requested to provide supporting documents for mode of funding for the project activity.</p> <hr/> <p>Please note that section A 4.5 of PoA DD is regarding public funding for PoA. Please clarify, if any public funding is involved in the PoA or not..</p> <p>Moreover the document provided is not clear. It is stated that as on date, the Greenlight Planet India Pvt Ltd is 100% subsidiary of Greenlight Planet, USA. Project participant is requested to clarify the same.</p> <hr/> <p>As it has been clarified that PoA shall ensure that no ODA diversion is involved.</p> <p><b>The CAR is closed.</b></p> |
| <p>CAR 13</p> <p>Project participant is requested to provide justification for selection of level at which local stakeholder consultation is done.</p> <p>Project participant has not mentioned date of inviting stakeholders for the meeting.</p> <p>Stakeholders making comments have not been</p> | Table 2A, D 2.1, D 2.2 D 3.1 | <p>Section D.1 of the PoA-DD has been revised to include justification for selection of level at which local stakeholder consultation is done.</p> <p>The Stakeholders consultation meeting was held on February 9, 2011 at Sonpur, Begusarai District of Bihar. Invitations for the same were sent out 15 days in advance of the meeting i.e. January 25th 2011, besides putting up public notices. The copy of the invitation letter is</p>  | <p>The PoA-DD covers political boundary of India and in view of this project participant is requested to justify how one stakeholder meeting is representative of entire PoA-DD.</p> <p>The date of inviting stakeholders is not mentioned in PoA DD.</p> <p>Stakeholder making comments have not been identified in PoA-DD.</p>   |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants  | Validation Conclusion  |
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| identified in PoA DD.                            |                      | <p>being attached.</p> <p>The stakeholders participating in the meeting involved local residents, end users, representatives of the government school, local governmental body, Lamp retailers etc. as mentioned in D.2 of the PoA-DD already. The attendance record of the same is being submitted as a proof of their identification. The discussion and comments took place within the same group.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>The target users of the programme are users who were dependent on kerosene as their primary source for lighting. The concerns of such stakeholders, in relation to the programme, are not expected to vary with the administrative/regional boundaries within the PoA boundary.</p> <p>Further, the stakeholders attending the meeting covered representatives of the local government, users of lamps, school teachers, GLP staff and retailers. Therefore, the attendees cover representatives of wide range of individuals / households/organisations that would be affected by the programme and encompassed all social and economic classes that can be expected to be impacted by the programme throughout the political boundary of India. Thus, the concerns/comments raised by this group of stakeholders are not expected to be different than any other group of stakeholders in the PoA</p> | <p>Complete name of the location where stakeholder meeting was conducted is not mentioned in POA-DD.</p> <p>Project participant is requested to provide project concept note provided to stakeholders for the stakeholder meeting.</p> <hr/> <p>Stakeholder making comments have not been identified. Date of invitation is not mentioned in PoA DD.</p> <hr/> <p>All necessary details have been found included in the PoA DD in section D.2 and D.3 and supporting documents have been checked as correct. Hence the <b>CAR is closed</b>.</p> |



| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants  | Validation Conclusion |
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|  |                      | <p>boundary.<br/>Therefore, the stakeholder's meeting conducted is deemed as representative of the entire PoA.<br/>This coupled with the fact that the nature and design of the programme as a whole, is homogenous throughout the PoA boundary, irrespective of the geographic location further fortifies that the stakeholders meeting is representative of the entire PoA.<br/>The PoA-DD has been revised to include the date on which invitations were sent for the stakeholder's consultation and the names of the stakeholders making comments</p> <p>The complete location of Stakeholder's meeting is Middle School Salaha, Gram PanchayatSonpur, Matihani Block, Begusarai district, Bihar, India. The same has been updated in the revised PDD.</p> <p>Please refer the attached Concept Note provided for the stakeholder's meeting.</p> <p><b>Reply from PP: 13 Dec 2012</b><br/>The stakeholders making comments have been identified and the same has been mentioned in the revised PoA-DD. The following stakeholders raised comments:</p> <ul style="list-style-type: none"> <li>• Gauri Shankar Sharma (Individual)</li> <li>• Ram Prakash Sahu (Individual)</li> <li>• Uma Kant Singh (Government school teacher)</li> <li>• Chandan (Individual)</li> </ul> |                       |

| Corrective action and/ or clarification requests                                 | Reference to Table 2 | Response by project participants  | Validation Conclusion   |
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|  |                      | <ul style="list-style-type: none"> <li>Niwash Shani (GLP retailer 'Saathi')</li> <li>Manju Devi_(Member of the Local Governance body)</li> </ul> <p>The date of inviting the stakeholder's has been mentioned in the PoA-DD. The same can be cross checked from the invitation letters shared.</p> <p>The letters were issued on GLP, India letterhead and were distributed to GLP local offices from the head office electronically. The same letters were printed at local offices and distributed to the stakeholders. The concept note already mentions the name of GLP, India director with contact details for submitting any query by the stakeholder, if any.</p>         |   |
| <p>CAR 14</p> <p>Project boundary is not mentioned in section E.3 of PoA DD.</p> | Table 2A, E.3        | <p>PoA boundary is mentioned in section A.4.1.2. of the PoA-DD.In Section E.3. Description of the sources and gases included in the CPA boundary has been included as per the requirements of the PoA-DD template.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>Section E.3 of PoA DD has been revised to include project boundary. As per the applied meth, the project boundary is the physical, geographical site where each project lamp is utilized and if the project lamps are charged by a renewable energy system then the project boundary includes the physical, geographical site of the renewable energy system. Therefore, for the proposed PoA, the project</p> | <p>As per PoA DD template, physical/ geographical boundary is to be included in section A 4.1.2. Whereas as per Glossary of CDM terms, project boundary of SSC-CPA shall encompass significant anthropogenic emissions by sources of greenhouse gases under the control of the project participants that are reasonably attributable to the small-scale CDM project activity. Project boundary is not mentioned in section E.3 of PDD.</p> <hr/> <p>Project boundary has been mentioned in section E.3 of revised PoA DD and the revised project boundary includes all the sites where lamps will be sold. The project boundary is in line with</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants   | Validation Conclusion                    |
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|  |                      | boundary includes all the sites where the project lamps would be utilized. | methodology and hence the CAR is closed. |

| Corrective action and/ or clarification requests  | Reference to Table 2       | Response by project participants  | Validation Conclusion  |
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| <p>CAR 15</p> <p>Baseline scenario is not justified.</p> <p>1) It is stated in section E 4 that 149.23 million kerosene lamps are used in various parts of the country. The publication cited is for the year 2004 which is very old. Project participant is requested to justify applicability of such old data for the project activity.</p> <p>2) National Sample Survey Organization Publication 'Energy sources of Indian households for cooking and lighting 2004-05 also provides data which is old and project participant is requested to justify applicability of such old data to the project activity.</p> <p>3) Further the document of national Sample Survey states that 44.4% of households in rural India use kerosene whereas in urban India only 7.1% of households use kerosene. The document further states that there was a drop in the percentage of households using kerosene as primary source of energy for lighting from 51% to 44% in rural India, and from 10% to 7% in urban India, since 1999-2000. Project participant is requested to explain how Kerosene can be taken as common practice of fuel if its usage is on decline and it does not account for significant proportion of fuel considering both urban and rural areas. The project activity does not restrict selling of lamps in only rural areas and its geographical boundary is political boundary of India.</p> | <p>Table 2A, E.4, A2.4</p> | <p>1) The PoA DD has been revised not to include this information in light of more recent information available from NSSO 2010 report on households using kerosene as primary source of lighting.</p> <p>2) Most recent NSSO report (2010) as published in March 2010 has been used in the revised PoA-DD.</p> <p>3) The NSSO 2010 report has been used in the revised PoA-DD. Although there has been a reduction in use of kerosene for lighting over the last decade in percentage terms (from 47.1% (2001) to 38.6% (2008) in rural areas and from 7.8% (2001) to 5.6% (2008) in urban areas), it has only marginally changed in absolute terms due to increase in population over these years (in 2001 a total of 69.4 million households were using kerosene as their primary source of lighting whereas in 2008 it was 64.6 million households). It is important to note that kerosene still remains the most common direct fuel used for lighting in portable lamps (39% rural and 6% urban as per NSSO 2010 i.e. 65 million households). Oil/gas/others (all combined) sources of fuel for lighting is prevalent in only around 1% households in rural as well as urban areas in India. Further, the</p> | <p>It is stated in conclusion section of E.4 of revised PoA-DD that significant part of Indian rural population relies on kerosene-based lighting whereas the PoA is not restricted to only rural areas. It is observed from NSSO report that kerosine for lighting constitutes very small percentage in urban areas. Moreover the footnote 35 referred in conclusion section of E.4 is of the year 2004-05 which is very old.</p> <p>Please refer Table P17 of the NSSO report which states that 66% of rural household in Jharkhand, 64% rural household in Orissa, 71% rural household in Uttar Pradesh use Kerosine as a fuel of lighting whereas these numbers do not tally with the numbers given in PoA-DD.</p> <p>The link to footnote 27 is not opening.</p> <p>Footnote 25 does not show that 69.4 million households were using kerosine as fuel for lighting as stated in PoA-DD.</p> <p>It appears from NSSO report that electricity is the major source of lighting in rural areas of most of the states. In urban areas, electricity is the major source of lighting in all the states. The report also shows that there has been a decline in percentage of households using kerosine as fuel for lighting in rural and urban areas of India over the years.</p> |

| Corrective action and/ or clarification requests   | Reference to Table 2 | Response by project participants  | Validation Conclusion  |
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| <p>4) It is stated in section E 4 that at least 70-80 million rural households still depend on kerosene lamps for meeting a basic need such as lighting. The publication cited is for the is very old. Project participant is requested to justify applicability of such old data for the project activity.</p> <p>5) It is stated in section E 4 that 360 million people, who are without electricity, are still dependent on kerosene as a lighting fuel. The reference cited only states that 360 million people lack access to electricity but it does not state that they use Kerosene for lighting. Project participant is requested to explain the same.</p> <p>6) It is stated in E 4 that significant part of Indian rural population relies on Kerosene based lighting and thus in absence of project activity baseline scenario would be continued use of fossil fuel for lighting purpose. The project distributes lamps not only in rural India but geographical area is political boudary of India so project participant is requested to explain how data of only rural India is used to demonstrate that Kerosene is significant fuel and moreover the literature cited is of year 2004-05 which is very old so project participant may explain its applicability to project activity.</p> |                      | <p>PoA targets specifically those households that use kerosene/oil as their primary source of lighting and shall be based primarily in rural sectors of India.</p> <p>4) The value has been revised AS per NSSO 2010 to be approximately 65 million.</p> <p>5) The value has been revised using International Energy Agency, world Energy Outlook 2011. AS per the same, 288.8 million people in India do not have access to electricity. It is implied that these people move to kerosene to meet their lighting needs, kerosene being the most common source of lighting after electricity in India.</p> <p>6) The data from NSSO 2010 has been used in revised PoA DD to include data on both rural and urban sectors of India. Although there is much less use of kerosene for primary source of lighting in urban areas as compared to that in rural areas, there are still 3.2 million households in urban India who rely on kerosene as their primary source of lighting. The PoA specifically targets the households in rural/urban India who use fossil fuel (kerosene/oil) as their primary source of lighting.</p> | <p>In view of above project participant is requested to justify as how kerosine can be taken as major fuel for lighting for the PoA whose area is political boundary of India.</p> <p>It was observed during site visit that most of the customers of solar LED lamps were using Kerosene prior to using solar LED lamps. However, some of the customers of solar LED lamps were using solar light and battery operated light prior to using solar LED lamps.</p> <hr/> <p>It is mentioned that by virtue of target customer group that the programme results in replacement of fossil fuel based lamps. This is not clear as the literature cited shows that kerosene is not the prevalent source of lighting in certain states in India for eg: the percentage of household using kerosene in NCT of Delhi is less than 1% whereas the PoA boundary is India..</p> <p>.Please note that some of the customers of solar LED lamps were using solar light and battery operated light prior to using solar LED lamps and not alonwith solar lamps</p> <hr/> <p>The PoA boundary has been fixed as India, which is deemed appropriate as the</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants  | Validation Conclusion  |
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|  |                      | <p>Also, kerosene still remains the most common fuel for lighting (besides electricity). All other fossil fuels are prevalent is less than 1% households in either urban/rural India. Thus, kerosene as the baseline fuel is deemed appropriate.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>Footnote 35 has been removed and the conclusion has been revised. Based on more recent documents referred in the section, there are a sizable number of households (~77 million as per Census of India 2011) across India that still depends on Kerosene as the main source of lighting.</p> <p>The values reported in the PoA-DD have been taken from the tables (table 15R and 15U) mentioned in Appendix 1 of the NSSO report. The same is also referred to in section 4.3 of the report with table P17. It is more appropriate to refer to these detailed tables as the corresponding data for urban areas has also been provided in the same section, in the same format, and is hence, comparable.</p> <p>Further, the discrepancies between tables P17 and 15R of the same report are insignificant for the purpose of the PoA-DD, and hence can be ignored.</p> <p>Footnote 27 has been checked and is found to be workable. A copy of the same was also shared in the mail dated 20 Jan</p> | <p>lamps may be sold in various parts of India in future.</p> <p>Also, the PoA-DD has been revised to state that CPA boundary shall be determined for each CPA independently at the CPA level.</p> <p>The Boundary of CPA 1 has been reduced from India to the states of Uttar Pradesh, Bihar, Jharkhand, Odisha and Assam. The % of households using kerosene as primary source of lighting in each of these individual states can be deemed as common practice with an overall ~66% households using kerosene as primary source of lighting in the CPA region. Thus, it is ensured as per para 6(a) of the methodology AMS III.AR version 03, that the CPA shall ensure replacement of fossil fuel based lamps.</p> <p>Further as this has been developed as an inclusion eligibility criteria, as mentioned in the section A.4.2.2 of the revised PoA-DD, hence the same is also ensured for the PoA.</p> <p>Hence the CAR is closed.</p> |

| Corrective action and/ or clarification requests | Reference to Table 2  | Response by project participants  | Validation Conclusion   |                  |   |   |        |                       |                              |            |       |          |     |         |       |           |      |          |       |           |  |          |  |
|--|-----------------------|---|---|------------------|---|---|--------|-----------------------|------------------------------|------------|-------|----------|-----|---------|-------|-----------|------|----------|-------|-----------|--|----------|--|
|  |                       | <p>2012 for DOE's reference.</p> <p>Please refer to the explanation given in Footnote 25 which clarifies that the households using kerosene as fuel for lighting in 2001 have been calculated from the link mentioned in the footnote (number of households from the Census of India data) and table P18 of the NSSO report (percentage of households with primary source of energy used for lighting). On using these values, the total number of households (HH) using kerosene in India in 2001 is ~69.3 million as stated in PoA-DDas explained in the table below:</p> <table> <tr> <th>Description</th><th>Total Households</th><th>Households using Kerosene as their primary source of lighting (%)</th><th>Households using Kerosene as their primary source of lighting</th></tr> <tr> <td>Source</td><td>Census of India, 2001</td><td>NSSO 2010 Report (table P18)</td><td>Calculated</td></tr> <tr> <td>Urban</td><td>53692376</td><td>7.8</td><td>4188005</td></tr> <tr> <td>Rural</td><td>138271559</td><td>47.1</td><td>65125904</td></tr> <tr> <td>Total</td><td>191963935</td><td></td><td>69313910</td></tr> </table> <p>The same has been mentioned in the revised PoA-DD. As explained in the PoA-DD, although over last decade there has been a small decrease in % of households relying on kerosene as primary source of lighting, in absolute terms the decrease is only marginal due to a significant increase in population over the last decade.</p> <p>As per NSSO data, ~98% of rural</p> | Description   | Total Households | Households using Kerosene as their primary source of lighting (%) | Households using Kerosene as their primary source of lighting | Source | Census of India, 2001 | NSSO 2010 Report (table P18) | Calculated | Urban | 53692376 | 7.8 | 4188005 | Rural | 138271559 | 47.1 | 65125904 | Total | 191963935 |  | 69313910 |  |
| Description                                      | Total Households      | Households using Kerosene as their primary source of lighting (%)   | Households using Kerosene as their primary source of lighting |                  |   |   |        |                       |                              |            |       |          |     |         |       |           |      |          |       |           |  |          |  |
| Source   | Census of India, 2001 | NSSO 2010 Report (table P18)  | Calculated  |                  |   |   |        |                       |                              |            |       |          |     |         |       |           |      |          |       |           |  |          |  |
| Urban  | 53692376              | 7.8   | 4188005   |                  |   |   |        |                       |                              |            |       |          |     |         |       |           |      |          |       |           |  |          |  |
| Rural  | 138271559             | 47.1  | 65125904  |                  |   |   |        |                       |                              |            |       |          |     |         |       |           |      |          |       |           |  |          |  |
| Total  | 191963935             |   | 69313910  |                  |   |   |        |                       |                              |            |       |          |     |         |       |           |      |          |       |           |  |          |  |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants   | Validation Conclusion |
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|  |                      | <p>households (relying on fossil fuels for lighting) use kerosene.</p> <p>Similarly, 85% of urban households (relying on fossil fuels for lighting) rely on kerosene. Thus, kerosene is indeed the most common fossil fuel used for lighting.</p> <p>Even in urban areas, although a higher portion of population has access to electricity for lighting, in absolute terms, more than 5 million urban households still use kerosene as their primary source of lighting as per 2011 census report. As explained above, regardless of the disparity between the major source of lighting in India, a significant portion of the population depends upon Kerosene and other fossil fuels as their primary lighting fuel.</p> <p>Through this initiative, the PoA targets such households for replacing fossil fuel based lighting systems with the cleaner Solar LED lamps. A portion of such households may also fall in the so-called 'urban areas' as per the classification by Government of India. Therefore, the PoA boundary has been determined to include urban areas as well.</p> <p>The households were using other solar powered/battery operated lighting equipments in addition to the Solar LED lamps distributed by the PoA as they had greater needs for lighting. This additional demand for lighting (that provided by PoA lamps) would have been met in the baseline with fossil fuel powered lamps</p> |                       |



| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants  | Validation Conclusion |
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|  |                      | <p>only. It was observed during site visit interviews that such users confirmed having fossil fuel based lamps in the household prior to the project solar LED lamp. Therefore, it can be concluded project solar LED lamps replace lamps that were directly consuming fossil fuel.</p> <p><b>Reply from PP: 13 Dec 2012</b></p> <p>Please refer to response to CAR 5 for an explanation of the common practice for lighting.</p> <p>Please also note that of the samples assessed during the site visit, most of the households were using fossil fuel to meet their lighting needs.</p> <p>There were a couple of households that had other solar lighting equipment installed in their households in addition to the project lamps. Thus, it can be inferred that they had additional lighting needs which would have been met in the baseline with fossil fuel powered lamps only.</p> <p>There was only one such household having a battery operated lamp prior to the using solar LED project lamp. However, the user confirmed using kerosene in the past before using the battery operated lamp. Also, the percentage of such population is deemed to be negligible and insignificant for the PoA. The baseline has already been demonstrated using published literature as explained above.</p> <p>Please refer to section A.2 of the CPA-DD</p> |                       |

| Corrective action and/ or clarification requests  | Reference to Table 2 | Response by project participants   | Validation Conclusion  |
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|   |                      | which explains that the CPA meets the requirement of para 6(a) of the methodology by demonstrating that kerosene is a common practice in the CPA boundary.   |  |
| <p>CAR 16</p> <p>Paragraph 6 and 7 of AMS III AR ver 01 – ‘Substituting fossil fuel based lighting with LED lighting systems are not included in section E 6.1 of PoA DD.</p> | Table 2A, E.6        | <p>Para 6 of AMS.III-AR refers to design specifications of the project lamps. Since a variety of Solar LED lamp models (with different types of battery, wattage, illuminance etc.) might become a part of PoA in due course of time, the design specifications of each lamp model included in a CPA would be provided in the corresponding CPA-DD only.</p> <p>Section E 6.1 of PoA DD has been revised to include requirements of para 7 of AMS.III-AR.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>Please refer to response to CAR 7 for compliance with para 6 of the applied methodology.</p> <p>CPAs shall ensure compliance with para 7 of AMSIII.AR by monitoring the number of project lamps distributed in a household. As required by the methodology, for any household/business location having more than 5 lamps credits shall be limited to the first 5 lamps sold in the household/business location. Any lamp sold in excess of 5 units in a given household/business location shall not be included in any CPA of the PoA and rendered ineligible by CME</p> | <p>Please note that para 6 is a requirement of methodology. Further, as per para 7 of methodology, number of lamps are restricted to not more than 5 per household (for residential application) or per business location. It is stated in PoA DD that any lamps in excess of 5 per household will not be included in PoA. Project participant is requested to explain the same.</p> <hr/> <p>Format for including technical specifications is not included in PoA DD. Para 7 of methodology states that number of lamps will be restricted to no more than 5 per household or business location. Project participant is requested to explain how requirement of para 7 of methodology is met.</p> <hr/> <p>In line with AMS III. AR. Version 03, para 8, the PP shall monitor the number of projects lamps per household/business location and shall exclude any project lamps in excess of 5 in a given household from emission reduction calculations. Hence the CAR is closed.</p> |

| Corrective action and/ or clarification requests   | Reference to Table 2 | Response by project participants   | Validation Conclusion   |
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|  |                      | <p><b>Reply from PP: 13 Dec 2012</b></p> <p>Please refer AMS. III.AR version 03 which clarifies that “restricting” the number of lamps to 5 per households implies that emission reductions can be claimed for upto 5 lamps per household/business location and lamps beyond the count of 5 at a particular location shall not be included in the project boundary.</p> <p>As mentioned in the response dated 01 May 2012 above, CPAs shall ensure compliance with paragraph 7 of AMS. III.AR by monitoring the number of project lamps distributed in a household/business location and any lamp sold in excess of 5 units in a given household/business location shall not be included in any CPA of the PoA and no ERs would be claimed for such lamps.</p> |   |
| <p>CAR 17</p> <p>In section E 7.2 of PoA DD, reference is given to section A 4.4.1 and A 4.4.2 of PoA DD. Monitoring plan for SSC-CPA is not provided.</p> | Table 2A, E 7.2      | <p>The monitoring plan of CPA shall be same as that of a PoA. To avoid duplication of information, reference to section A.4.4.1 (operational and management plan) and section A.4.4.2 (monitoring plan) has been mentioned instead.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>Monitoring plan for a CPA includes a list of parameters to be monitored, along with its measurement methods and procedures and QA/QC procedures to be applied etc. These have already been mentioned in the section E.7.1 of the PoA-DD. In addition to the above, the</p>   | <p>Please note that section A 4.4.2 refers to monitoring plan for PoA and section E 7.2 refers to monitoring plan for CPA. Project participant is requested to clarify how monitoring plan for PoA and CPA can be same.</p> <hr/> <p>In the revised PoA DD, monitoring plan of CPA is provided. It is mentioned that monitoring plan includes list of</p> |

| Corrective action and/ or clarification requests   | Reference to Table 2   | Response by project participants   | Validation Conclusion  |
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|  |                        | <p>monitoring plan also included information on procedures for data collection, archiving, compilation and transfer, procedures to avoid double counting, along with the roles and responsibilities.</p> <p>The operation and management plan set out in the PoA-DD section A.4.4 governs these procedures for each of the CPA that would be included under the PoA. Therefore, for a typical CPA, this information on monitoring has already been described in the PoA-DD section A.4.4. Further details on monitoring of a CPA are specific to each CPA and its implementer, and have been discussed in the revised CPA-DD.</p> <p>The sampling procedures, to be used wherever applicable, have been described in Appendix 1 of the PoA-DD.</p> <p>Thus, the monitoring plan for the PoA and CPA are similar. In the revised PoA-DD, sections E.7.2, specific sections of the PoA-DD have been referred and monitoring plan has been explained.</p> | <p>parameters to be monitored along with measurement methods to be applied. The monitoring plan is adequate and it is in line with methodology, hence the CAR is closed.</p>   |
| <p>CAR 18</p> <p>The CPA that has been provided does not contain any details of which lamps are part of it and it is not clear as to how it will be tracked as to which lamps are part of which CPA. Technological benefits are not included in section A.2 of CPA-DD.</p> | <p>Table 2B, A 4.1</p> | <p>The lamp sales have not yet started in the PoA. As mentioned in the PoA-DD, each lamp shall have a unique serial number and shall bear the logo of the CPAI to uniquely map a lamp to its corresponding CPA.</p> <p>Technological benefits have been mentioned in section A.2 of the revised CPA-DD.</p> <p><b>Reply from PP: 01 May 2012</b><br/>Please refer to Section A.4 of the revised</p>  | <p>Project participant is requested to clarify which solar LED lamps will be part of this CPA.</p> <hr/> <p>Technological benefits are included in section A.2 of PoA DD and they are found to be adequate.</p> <p>The project participant has also clarified in</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2 | Response by project participants   | Validation Conclusion   |
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|   |                      | <p>specific CPA-DD for the first CPA. The section lists which lamp models are eligible to be included in the CPA along with its design characteristics.</p> <p>Further, as explained in CAR 4 and CAR 5 above, the exact serial number of lamps cannot be included in the CPA-DD.</p>  | <p>reply to CAR 4 that since all the lamps of this CPA have not been sold so far, they are not included in the specific CPA-DD and they would be available at the time of verification and during first verification, serial number of lamps belonging to the specific CPA DD will be checked.</p> <p>As this has been already raised as FAR1 in CAR 4, hence this is closed.</p>   |
| <p>CAR 19</p> <p>The boundary of SSC-CPA is stated as political boundary of India (in specific and generic CPA) and the geographical area of PoA is also political boundary of India.</p> <p>Project participant is requested to explain the geographical boundary of CPA (specific and generic) and also explain in which states the lamps in this CPA 1 will be sold.</p> | Table 2B, A 4.1.2    | <p>The number of lamps in CPA1 is limited to 250,000 on account of micro-scale threshold of 20ktCO<sub>2</sub>e per annum. The lamp sales have not started yet and shall depend upon the market development and consumer behavior. As soon as a sales volume of 250,000 is achieved the CPA would be closed and any subsequent sales would mark the start of next CPA. Thus for each batch of 250,000 a new CPA would be created over time. As it cannot be predicted ex-ante the areas where the sales would exactly materialize, the boundary has been limited to the boundary of PoA.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>The CPAs are open to all lamps that meet the eligibility criteria defined in the methodology and are deployed within the political boundary of India, irrespective of their location within the country.</p> <p>Therefore, in Greenlight Solar PV Lighting India "CPA 01, lamps may be sold in any of the states and union territories of India, as long as the eligibility criteria is met. Hence, the CPA boundary has been</p> | <p>The boundary of CPA is not clear. Project participant is requested to clarify how it will be ascertained as to which lamps are part of which CPA.</p> <hr/> <p>The project participant has also clarified in reply to CAR 4 that since all the lamps of this CPA have not been sold so far, they are not included in the specific CPA-DD and they would be available at the time of verification and during first verification, serial number of lamps belonging to the specific CPA DD shall be checked by the verifying DoE. AS this has already been raised as FAR1 in CAR 4, this issue is closed.</p> <p>Further, the project participant has clarified that boundary of CPA is also political boundary of India. Kerosene is the not the prevalent source of lighting in certain states in India for eg: the</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2       | Response by project participants  | Validation Conclusion  |
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|   |                            | <p>defined as political boundary of India.</p> <p>Further, sections A.4.1.2. and B.4 of the CPA-DD have been revised to include a details of the project boundary. As per the applied meth, the project boundary is the physical, geographical site where each project lamp is utilized. In addition, since the lamps are charged by a renewable energy system then the project boundary includes the physical, geographical site of the renewable energy system. Therefore, for the proposed CPA, the project boundary includes all the sites where the project lamps would be utilized.</p> <p>Please refer response to CAR 4 for an explanation of how it will be ascertained as to which lamps are part of which CPA.</p> <p><b>Reply from PP: 13 Dec 2012</b></p> <p>The CPA1 boundary has been reduced from India to only 5 states viz Uttar Pradesh, Bihar, Jharkhand, Odisha and Assam with the kerosene as commonly used fuel as mentioned in section A.2 of the revised CPA DD.</p> | <p>percentage of household using kerosene in NCT of Delhi is less than 1% whereas the CPA boundary is India. Please clarify.</p> <hr/> <p>The CPA boundary has been revised to include those states where kerosene is demonstrated as a commonly used fuel in light with para 6(a) of AMS III.AR version 03.</p> <p>The CAR is closed.</p> |
| <p>CAR 20</p> <p>Start date is provided as date of first lamp of the CPA. The start date needs to be justified. As per data provided, CPA Implementer has already starting selling lamps from April 2011 onwards, however these lamps are not marked with CDM unique identification. Project participant is requested to provide justification why CDM is</p> | Table 2B, A 4.2.1, Annex 2 | <p>As stated in PoA and CPA-DDs, lamp sales have not yet started in the PoA.</p> <p>A very small amount of methodology non-compliant lamps were sold earlier to check consumer behavior and market dynamics and is not comparable to the scale of the PoA which aims to disseminate over a million lamps over its</p>   | <p>Project participant is requested to justify start date as lamp sales have already started before the start of PoA.</p> <p>It was informed during site visit that sale of solar lamps in Bihar is taking place since 2009 whereas it was informed earlier that sale of lamps in Bihar started in April 2011. Project participant is</p>  |

| Corrective action and/ or clarification requests             | Reference to Table 2 | Response by project participants   | Validation Conclusion   |
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| <p>required if already they have sold lamps without CDM.</p> |                      | <p>lifetime.</p> <p>It is important to note that these lamps have been excluded from this PoA completely and shall not be associated with the PoA at all.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>The lamps sales under the PoA started from January 01, 2012 (See attached file CPA01-Start date evidence). Thus, all lamps that have been sold under the PoA are those that have been sold after the start of validation of PoA.</p> <p>Since no lamps sold prior to the 01/01/2012 have been included in the first CPA, the start date of the CPA has been revised to 01/01/2012. This date is after the start date of validation of the PoA.</p> <p>Any lamps sold prior to the start of validation of the PoA are not included in the PoA. The first CPA of the PoA only includes lamps which have been sold after the start date of validation of the PoA. This is in accordance with the CDM requirements. Lamps that were sold prior to 01/01/2012 are neither eligible as per the methodology nor are included in the PoA and hence, are not associated with this proposed CDM PoA. Thus any previous sales prior to 01/01/2012 are outside the purview of PoA.</p> <p>Also in line with EB60, Annex 26, "Guidance for demonstrating prior consideration of CDM" is not applicable.</p> | <p>requested to provide annual report showing sales of lamps in various states.</p> <p>There is a text message written on box containing solar lamp and also on customer registration form that project is supported by carbon finance but project lamps are not marked as CDM project lamps.</p> <hr/> <p>Data on sales on lamps since 2009 has not been provided and nor are the annual reports provided. Project participant is requested to justify start date of CPA as lamps sales are going on since 2009 which is prior to start of PoA.</p> <p>Please note that the text on the registration form and on the box of lamps does not mention CDM. It only mentions carbon finance. More over the there is no marking on the lamps.</p> <hr/> <p>The audites sales figures since 2009 have been made available to DoE. Also, it has been checked that the earlier lamp models were not eligible under the methodology and hence cannot be part of the CPA1 or the PoA.</p> <p>The start date of CPA1 has been justified with documentary evidence (warranty card of the first lamp sold under the PoA</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants   | Validation Conclusion  |
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|  |                      | <p>In addition to a disclaimer on the product box and the registration form, the lamps bear a logo of the CPA implementer to indicate its affiliation to the proposed CDM PoA. The serial number of the lamp is also on the registration form that mentions CDM. Thus it can be clearly ensured by virtue of unique serial number if a lamp is a CDM lamp. Further, please refer to the detailed text of the disclaimer, which also explicits that the right to all emission reductions resulting from the use of the product are retained with the CPA implementer. The CPA implementer has in return signed an emission reduction purchase agreement with the CME, a copy of which has already been shared with the DOE. Therefore, the measures taken by the CPA implementer are a step further ahead of the minimum requirement set out in the methodology. Therefore, the CPA is in compliance with para 5(b) of AMS.III.AR version 01.</p> <p><b>Reply from PP: 13 Dec 2012</b></p> <p>A duly signed copy of the summary of audited annual sales figures of the company (FY 2009-10, 2010-11, and 2011-12) are being provided. Refer "Summary of Sales". The financial statements for FY 2009-10 and 2010-11 of the company are also being provided for cross check of the data. Item 28 of the financial statements summarise the stocks and purchases of lamps during the period.</p> <p>The financial statement for FY 2011-12 is</p> | <p>dated 01/01/12).</p> <p>To validate the earlier sales and CDM consideration, the DoE has assessed the chronology of events justifying CDM consideration for previous sales as well.</p> <p>The provision for unique serial number on each lamp body, as well as, disclaimer on warranty card which transfers the right to all emission reductions resulting from the use of the product to the CPA implementer ensure that no double counting occurs in the project activity. The DoE has reviewed the latest registered CDM project activity on AMS III.AR. (CDM ID – 6950) which uses the same approach to avoid double counting.</p> <p>The CAR is closed.</p> |



| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants   | Validation Conclusion |
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|  |                      | <p>under preparation and can be cross checked once prepared.</p> <p>The start date of the PoA is the start of validation of the PoA (start of GSC) – which is in line with the CDM Glossary of terms.</p> <p>Thus, the start date of the PoA is in line with the CDM requirements.</p> <p>Please refer to the revised CPA-DD section B.3. which explains that though there have been some sales prior to the start of validation of the PoA, those lamps are ineligible as per the requirements of the PoA/methodology and hence, can not be included in the CPA.</p> <p>Further, the timeline in the above referred section of the CPA-DD substantiates that CDM was seriously considered at the time of conceptualisation of the programme. Thus, though the previous sales were sold in consideration with CDM, they are ineligible as per the methodological/PoA requirements. An eligibility criteria for inclusion has been mentioned in the PDD which mandates the start date of CPA to be after the start of validation of PoA.</p> <p>The first meth/PoA eligible lamp sale took place on 01/01/2012. This is therefore the first real action towards implementation of the CPA. Therefore, as per the CDM Glossary of terms, this date has been taken as the CPA start date; and is also later than the start date of the PoA.</p> <p>Please refer to the requirement of para 6(b) of the methodology which requires</p> |                       |

| Corrective action and/ or clarification requests   | Reference to Table 2 | Response by project participants   | Validation Conclusion  |
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|  |                      | <p>the P(oa)-DD to explain how the project activity will eliminate double counting of ERs. Please refer to the response above dated 01 May 2012, which explains provisions of serial numbers and ER transfer text in the programme design to ensure the same. The same approach has also been used in the registered project activity 6950.</p> <p>Please note that 'carbon finance' includes CDM as well. Mentioning carbon finance prevents any party from claiming ERs arising from the use of the product under any other emission reduction programme.</p>                        |  |
| <p>CAR 21</p> <p>The starting date of crediting period is stated as 01/01/2012 or Date of inclusion of the CPA in the PoA whichever is later. The date needs to be corrected to a reasonable and realistic date.</p> | Table 2B, A 4.3.1    | The date has been revised suitably.  | The starting date has been revised in section A 4.3.1 in CPA-DD and realistic date has been provided. Hence the CAR is closed.   |
| <p>CAR 22</p> <p>It is stated that there is no public funding for CPA. Project participant is requested to clarify mode of funding with evidence</p>   | Table 2B, A 4.5.1    | <p>The mode of funding is private equity and does not results in diversion of any ODA.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>Please refer to the attached file "GLP – Mode of funding".</p> <p><b>Reply from PP: 13 Dec 2012</b></p> <p>Please refer to the attached document "GLP- Mode of funding" which clarifies the mode of finding to be debt and internal equity (besides the carbon revenues realizable in future). With the phrase, "as on date" GLP wish to clarify that there is no party other then GLP, USA which has a stake in GLP, India. In future, GLP</p> | <p>Project participant is requested to provide supporting documents for mode of funding for the project activity. Please clarify, if any public funding is involved in the CPA or not.</p> <hr/> <p>Moreover, the document provided is not clear. It is stated that as on date, the Greenlight Planet India Pvt Ltd is 100% subsidiary of Greenlight Planet, USA. Project participant is requested to clarify the same.</p> <hr/> <p>As it has been clarified that CPA shall ensure that no ODA diversion is involved.</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2 | Response by project participants  | Validation Conclusion   |
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|   |                      | might secure funding from other institutions ensuring no diversion of ODA.  | The CAR is closed.  |
| <p>CAR 23</p> <p>It is stated in CPA-DD that the small-scale CPA is neither registered as an individual CDM project activity nor part of another registered PoA.</p> <p>However it is not transparent on how the CME has confirmed the same before inclusion of the CPA in the PoA. The generic CPA also has not included the steps to be followed before such CPA inclusion.</p> | Table 2B, A 4.6.1    | <p>Please refer the eligibility criteria section of CPA-DD.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>Please refer to the following eligibility criteria detailed in the CPA-DD:<br/>The CPA is developed and implemented by GLP which has signed the standard contractual agreement with the CME to participate in the PoA; such agreement guiding the transfer of the emission reduction rights to the CME.<br/>The above criteria ensures that the CPA is identifiable for its affiliation to the PoA and there is no possibility for its inclusion as an individual CDM project activity not as a part of another PoA subsequently.</p> <p>4.1.1<br/>Further, as per the CPA-DD template, section A.4.7, a confirmation that the <u>small-scale CPA</u> is neither registered as an individual CDM project activity or is part of another Registered PoA has to be provided. The same has been provided in the referred section. It can be confirmed by the fact that there is no other CDM project activity registered under AMS III.AR at present.</p> <p>Since this information is already covered in another section of the CPA-DD template, it does not need to be included as a separate eligibility criterion.</p> | <p>The eligibility criteria does not contain the details that CPA-DD that the small-scale CPA is neither registered as an individual CDM project activity nor part of another registered PoA.</p> <hr/> <p>As the confirmation is provided in section A 4.7 of CPA-DD that CPA is neither registered as a individual CDM project activity and nor it is part of another PoA, the same is acceptable to the validation team. Hence the CAR is closed</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2   | Response by project participants  | Validation Conclusion   |
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| <p>CAR 24</p> <p>Project participant has not detailed the Guidelines used to demonstrate additionality in CPA-DD</p>  | Table 2B, A 3.2        | <p>The same has been mentioned in the revised CPA-DD.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>The revised CPA-DD now details the criteria from the 'Guidelines for Demonstrating Additionality of Microscale Project Activities, (version 3)'. The same are also included in the eligibility section of the CPA-DD.</p> <p><b>Reply from PP: 13 Dec 2012</b></p> <p>Please note that as per the latest Guidelines on the Demonstration of additionality of small scale project activities (v09), the scale of the PoA has been revised from micro-scale to small-scale project activity. Thus, the number of lamps per CPA shall be limited to those generating emission reductions of 60ktCO<sub>2</sub>e per year (equivalent to a maximum of 652,173 lamps per CPA) in accordance with version 03 of AMS III.AR.</p> | <p>Complete details have not been provided</p> <hr/> <p>The 'Guidelines for Demonstrating Additionality of Microscale Project Activities' is detailed in CPA-DD and found to be correct, hence the CAR is closed</p> <hr/> <p>The CAR is reopened as the scale of the PoA has been found changed from micro-scale to small-scale PoA. It has been checked that the Guidelines for demonstrating additionality of small scale project activities, ver 09 has been appropriately applied and the relevant requirements have been developed as eligibility criteria for inclusion of CPA in the PoA in section A.4.2.2. of the revised PoA DD. Hence, the CAR is closed.</p> |
| <p>CAR 25</p> <p>Project boundary is not detailed in section B.4 of CPA-DD</p> <p>It is not stated in section B.4 of CPA-DD that CPA is within geographical boundary of PoA and nor any proof of same is included</p> | Table 2B, B4.1, B 4.2, | <p>The same has been stated in the revised CPA-DD.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>Please refer eligibility criteria for inclusion of the CPA. A CPA shall include only solar LED lamps that would be distributed within India. Therefore, the geographical boundary of the CPA has been limited to political boundary of India which includes all states and union territories of India. The PoA boundary also includes all states and union territories of India. Therefore,</p>  | <p>Complete details have not been provided</p> <hr/> <p>Project boundary has been detailed in section B 4 of CPA-DD and it includes all the sites where lamp shall be sold. The project boundary is in line with the methodology. Hence the CAR is closed.</p>  |

| Corrective action and/ or clarification requests  | Reference to Table 2  | Response by project participants  | Validation Conclusion  |
|---|---|---|--|
|   |   | <p>the CPA shall be within the geographical boundary of the PoA. This can be checked by sales records/ warranty registration database.</p> <p>Section B.4 of the CPA-DD has also been revised to include the project boundary. As per the applied meth, the project boundary is the physical, geographical site where each project lamp is utilized. In addition, since the lamps are charged by a renewable energy system then the project boundary includes the physical, geographical site of the renewable energy system. Therefore, for the proposed CPA, the project boundary includes all the sites where the project lamps would be utilized.</p>   |  |
| <p>CAR 26</p> <p>The parameter <math>OF_{y,i,j}</math> (Percentage of project lamps distributed to end users that are operating and in service in year y) is not clear. Project participant may explain the measurement method and QA/QC procedure as it states that sampling size will be determined as per Annex 4 whereas in section B 5.2 it is stated that option 1 will be used.</p> <p>Responsibilities are not clear. Project participant may explain why information with respect to survey is mentioned in section B 6.1 as the CPA is using option 1 for determining effective useful life of lamps.</p> <p>Project participant has not described possible uncertainties and procedures to be followed in case of emergency situations</p> | <p>Table 2B, B6.1.1, , B 6.1.2, B 6.1.3, B 6.1.4, B 6.1.5, B 6.1.6, B 6.1.7</p> | <p>The generic CPA-DD has a monitoring plan that caters to both types of CPAs (those using option 1 and those using option 2). Hence <math>OF_{y,i,j}</math> is a standard monitoring parameter as per Generic CPA-DD.</p> <p>Since CPA1 uses option 1 this parameter is not required to be monitored. However, this finds a place in the monitoring plan due to its presence in generic CPA-DD whose template has to be adopted or preparing specific CPS-DDs.</p> <p>Same as above. The generic CPA-DD, in section B.6.1 has a provision for selection of appropriate option (Option 1 or 2). Greenlight Solar PV Lighting India "CPA 1" uses option 1 and the same has been reflected in section B.6.1 by checking the appropriate box provided in the generic</p> | <p>It is not clearly stated in CPA-DD that <math>OF_{y,i,j}</math> is not a required parameter for this CPA.</p> <p>Project participant is requested to clarify regarding uncertainties and emergency situations as the procedures of using the lower bound value of confidence interval in case the desired precision is not achieved is not applicable for this CPA.</p> <p>Operational and management structure implemented is not included in CPA-DD.</p> <p>It was observed during site visit that the some of the customers of solar LED lamps mentioned to be in Jehanabad district are actually in Arwal district. Project participant is requested to explain the same.</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants   | Validation Conclusion   |
|--|----------------------|--|---|
|  |                      | <p>CPA-DD template.</p> <p>An option of using the lower bound value of confidence interval in case the desired precision is not achieved instead of carrying out the survey again has been incorporated in the revised PoA and CPA-DDs to account for possible uncertainties.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>Please refer the section titled “Any comment” in the table for the parameter <math>OF_{y,i,j}</math> in section B.6.1 of the CPA-DD. It is clarified that this parameter is only to be monitored only for CPAs using option 2. It is further clarified in section B.5.2 that the CPA uses Option 1. Therefore, it is implied that this parameter is not be monitored for this CPA.</p> <p>This has been further clarified by adding a footnote in the PoA-DD and the CPA-DDs’ table for the parameter <math>OF_{y,i,j}</math>.</p> <p>A sampling plan, and hence, ‘procedures of using the lower bound value of confidence interval in case the desired precision is not achieved’ is not applicable for this CPA. However, it has been included in the specific CPA-DD due to its presence in the generic CPA-DD.</p> <p>Description of Operational and management structure is not required as per the CPA-DD template. These have been included in section A.4 of the CPA-DD. However, it must be noticed that all CPAs are governed by the operational</p> | <p>The reply provided in earlier response was that option of using lower bound value of confidence interval is mentioned to account for possible uncertainties. Since this is not applicable to specific CPA-DD, project participants are requested to clarify how uncertainties are addressed.</p> <p>The generic CPA provides choice between using option 1 and option 2 of the methodology as per para 11,12 of AMS III.AR, ver 03. The parameter <math>OF_{y,i,j}</math> in the CPA DD has been clarified to be applicable only in case option 1 is selected.</p> <p>QA/QC procedures for managing data uncertainties have been described in the CPA DD and is deemed appropriate. The CAR is closed.</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2 | Response by project participants  | Validation Conclusion   |
|---|----------------------|---|---|
|   |                      | <p>and management plan described in the PoA-DD, irrespective of its presence in the CPA-DD. The operational and management structure, emergency procedures implemented etc. are documented in a monitoring manual maintained by the CPAI for its CPAs.</p> <p>The erstwhile district of Jehanabad has now been divided into two new districts of Jehanabad and Arwal. However, GLP continued to record district level information as per the older administrative boundary. GLP shall in due course, train its employees and saathis to consider the revised boundaries for warranty registration so that the same is reflected in the sales data.</p> <p>This has already been rectified in the February sales data. Please also find attached the revised January sales datasheet, where this discrepancy has been corrected.</p> <p><b>Reply from PP: 13 Dec 2012</b><br/>Please also refer to the revised CPA-DD section B.6.1 which explains that the data collected would be QA/QC'ed by the CPAI and the CME to manage/ reduce/ address uncertainties.</p> |   |
| <p>CL 1</p> <p>It is stated in section A.2 that at least 70– 80 million rural households still depend on kerosene lamps for meeting a basic need such as lighting. The reference cited is for the year Oct 2001 which is very old. PP is requested to clarify applicability of such old data to the project</p> | Table 2A, A 2.1      | The PoA-DD has been revised to include most recent data as published by National Sample Survey Organisation (NSSO), Ministry of Statistics and Programme Implementation (MoSPI), Government of India in March 2010.   | Please refer Table P17 of the NSSO report which states that 66% of rural household in Jharkhand, 64% rural household in Orissa, 71% rural household in Uttar Pradesh use Kerosine as a fuel of lighting whereas these numbers do not tally with the numbers |

| Corrective action and/ or clarification requests  | Reference to Table 2   | Response by project participants   | Validation Conclusion   |
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| activity.   |                        | <p><b>Reply from PP: 01 May 2012</b><br/>Please refer to the response for CAR 15.</p> <p><b>Reply from PP: 13 Dec 2012</b> Please refer to the revised CPA-DD which now has a reduced project boundary to include only Uttar Pradesh, Bihar, Jharkhand, Odisha Assam, where kerosene as a commonly used fuel has been demonstrated using published literature.</p> | <p>given in CPA-DD.</p> <hr/> <p>It is mentioned in earlier response that by virtue of target customer group that the programme results in replacement of fossil fuel based lamps. This is not clear as the literature cited shows that kerosene is not the prevalent source of lighting in certain states in India for eg: the percentage of household using kerosene in NCT of Delhi is less than 1% whereas the PoA boundary is India.</p> <hr/> <p>The Boundary of CPA 1 has been reduced from India to the states of Uttar Pradesh, Bihar, Jharkhand, Odisha and Assam. The % of households using kerosene as primary source of lighting in each of these individual states can be deemed as common practice with an overall ~66% households using kerosene as primary source of lighting in the CPA region.</p> <p>This information is sourced from Census of India, 2011 database which is most recent published, credible government information on usage of kerosene as primary source of lighting.</p> <p>Hence the CL is closed.</p> |
| CL 2<br><br>Project participant is requested to provide copy of agreement between J.P.Morgan Ventures | Table 2A, A<br>4.1.2.4 | Please refer to the excerpts of ER purchase agreement between JPMVEC (CME) and GLP (CPAI of first CPA)   | Project participant is requested to provide complete copy of the document.  |



| Corrective action and/ or clarification requests  | Reference to Table 2   | Response by project participants   | Validation Conclusion   |
|---|------------------------|--|---|
| <p>Energy Cooperation (JPMVEC) and Greenlight Planet India Private Limited (GLP) who is CPA Implementer of CPA 1</p>  |                        | <p><b>Reply from PP: 01 May 2012</b><br/>Please refer to the attached file “GLP - erpa”.</p> <p><b>Reply from PP: 13 Dec 2012</b><br/>EcoSecurities India Pvt. Ltd. is owned by JP Morgan and hence has been appointed as CME for the PoA. Please find attached the amended ERPA substantiating the same.</p>  | <p>Complete copy of agreement between J.P.Morgan Ventures Energy Cooperation (JPMVEC) and Greenlight Planet India Private Limited (GLP) has been provided. It has been however found that EcoSecurities India Pvt. Ltd. has been mentioned as CME in the revised PDDs. Also, JPMVEC is mentioned as Annex 1 Participant. Please clarify</p> <hr/> <p>The amended EPRA has been received and found to be in line with the revised PDD. Hence the CL is closed.</p> |
| <p>CL 3<br/>Starting date of PoA is defined as 30/09/2011 as date of signature of validation work order.</p> <p>Project participant is requested to clarify whether this is the first real action taken by project participant towards the project activity</p> | <p>Table 2A, B 1.1</p> | <p>As per the CDM rules, a CPA must have a start date after the start of validation of the PoA.<br/>The validation for the PoA was started on 30 September 2011. The first CPA shall begin with the sale of solar LED lamps (in terms of real action) which has not yet started.<br/>In light of aforesaid, start of validation has been taken as start date of PoA.</p> <p><b>Reply from PP: 01 May 2012</b><br/>As per the CDM Glossary of terms, the start date is the earliest date at which either the implementation or construction or real action of a CDM PoA begins. Although ERPA between GLP and</p> | <p>Project participant is requested to clarify whether no other real action was taken by project participant prior to validation contract.</p> <hr/> <p>The project participant has clarified that first real action for PoA is the start of validation, but the given start date of the PoA is not acceptable to the validation team as it is not in line with latest Glossary of CDM terms, Please clarify..</p>  |

| Corrective action and/ or clarification requests   | Reference to Table 2 | Response by project participants  | Validation Conclusion   |
|--|----------------------|---|---|
|  |                      | <p>JPMVEC was signed in 2009, the first real action in the PoA started with start of validation. The lamps sales in the PoA started only on 01/01/2012 (after start date of validation). Please refer response to CAR 20 above for more details. Therefore, as per the definition above, the first real action for the PoA has been taken as the start of validation.</p> <p><b>Reply from PP: 13 Dec 2012</b></p> <p>The start date of the PoA has been revised to 14 October 2011, as the start date of GSP for the PoA in line with the latest Glossary of CDM terms.</p>  | <p>The start date of the PoA is found in line with the latest Glossary of CDM terms, hence, the CL is closed.</p>   |
| <p>CL 4</p> <p>Project participant may clarify regarding legal requirements for disposal of batteries and any other rules regarding disposal of e-waste. Also project participant is requested to clarify regarding transboundary effects.</p> | Table 2A, C 2.1      | <p>The batteries used in the Solar LED lamps included in the first CPA are lithium ion batteries.</p> <p>As per Ministry of Environment and Forests, Government of India <b>Batteries (Management and Handling) Rules, 2001</b>, the disposal regulations are limited to lead acid batteries only. At present there is no regulation in host country with respect to disposal of Li<sup>+</sup> batteries.</p> <p>In case the batteries used in the lamps come under the purview of any regulation in future, the same will be complied with.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>Solar LED lamp is an environmentally safe technology.</p> <p>No trans-boundary effects are expected to result from the implementation of this</p> | <p>Project participant is requested to clarify regarding trans-boundary effects.</p> <hr/> <p>The project participant has clarified that there are no legal requirements in India for disposal of Lithium ion batteries. Project participant has mentioned in PoA DD that there are no transboundary effects and it is found to be correct. As the above mentioned details are mentioned in PoA DD, the CL is closed.</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2 | Response by project participants  | Validation Conclusion   |
|---|----------------------|---|---|
|   |                      | PoA. The same has been included in the PoA-DD section C.2.  |   |
| CL 5<br>Project participant is requested to provide supporting documents for invitation letter and public notice for inviting stakeholders for the meeting.   | Table 2A, D 2.1      | Please refer to the copy of public notice and the invitation letters being submitted.   | Project participant has provided copies of invitation letter and public notice. Hence the CL is closed.   |
| CL 6<br>Project participant is requested to provide following documents<br><br>1) Document in support of rated average life of atleast 5000 hours and battery charging efficiency at the time of purchase of atleast 50%.<br><br>2) Document in support of minimum one year warranty.<br><br>Project participant may also clarify how it will be ensured that not more than 5 lamps per household (for residential applicaton) or per business location (for eg commercial application such as shops) will be ensured. Project participant may clarify as to what types of checks/controls will be inbuilt into customer registration database to ensure selling of not more than 5 lamps as per above mentioned criteria. Also project participant is requested to clarify as to how it will be ensured that total emission reductions are 20,000 tCO <sub>2</sub> e per year. | Table 2A, E.2        | <p>Please refer the following documents:</p> <ol style="list-style-type: none"> <li>1. <i>SunKing_Lifetime test report</i></li> <li>2. <i>GreenlightSunkingPro_specifications (pg 12/17)</i></li> <li>3. <i>Battery Efficiency Certificate Sun King and Sun King Pro - Sun King (77%) and Sun King Pro (74%)</i></li> <li>4. <i>Warranty registration cards SunKing and SunKing Pro)</i></li> <li>5. <i>Warranty registration card - Sun King Pro</i></li> <li>6. <i>Warranty registration card - Sun King</i></li> </ol> <p>The warranty registration process would be used to collect this information. For each household, ERs shall be claimed only for a maximum of 5 lamps.<br/>Any lamp in excess of five for a given household shall not be included in the PoA.</p> <p>Further, the size of each CPA is limited to no more than 20,000 tCO<sub>2</sub>e per annum (250,000 lamps equivalent) at any given time. Additional sales beyond 250,000 operational lamps would be included in subsequent CPAs. Therefore, the total emission reduction per year would never</p> | <p>Rated average life and battery charging efficiency are not clear from the documents provided.</p> <p>As per para 7 of methodology, number of lamps are restricted to not more than 5 per household (for residential application) or per business location. It is stated in PoA DD that any lamps in excess of 5 per household will not be included in PoA. Project participant is requested to explain the same.</p> <p>Project participant is requested to clarify checks that will be in built in customer registration to ensure that not more than 250,000 lamps are sold in any CPA.</p> <hr/> <p>Para 7 of methodology states that number of lamps will be restricted to no more than 5 per household or business location. Project participant is requested to explain how requirement of para 7 of methodology is met.</p> |

| Corrective action and/ or clarification requests | Reference to Table 2 | Response by project participants   | Validation Conclusion  |
|--|----------------------|--|--|
|  |                      | <p>be allowed to exceed 20,000 tCO<sub>2</sub>e per CPA.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>Please refer to the document “CL06-Battery efficiency certificate SunKing and SunKing Pro” shared in the mail dated 20-Jan 2012 – which clearly states the battery charging efficiency.</p> <p>To ascertain the lifetime of lamps, a 2000 hour test has been used as per test procedure in Bopp, et al. (2009) referred in the applied meth. The test conducted for 2000 hours reveals that the luminous flux of the lamp does not decrease by more than 10% during this time. (refer “<i>SunKing_Lifetime test report</i>” and the “<i>GreenlightSunKingPro_specifications</i>”).</p> <p>Thus, it is concluded that the lifetime of the lamp is 10,000 hours.</p> <p>The same has also been certified by the manufacturer and has been revised in the CPA-DD.</p> <p>Please refer to response to CAR 16 for an explanation of compliance with para 7 of AMS.III.AR, version 01.</p> <p>The sales data shall be shared by the CPAI with the CME periodically. The CME authorizes over creation of CPAs as required. Once the sales data is shared with the CME, lamps will be attributed to different CPAs. A CPA specific database shall be “cut-off” as soon as the number of operational lamps included in the CPA</p> | <p>The CL is closed as relevant test reports/manufacturer’s certificates for lamp models have been shared with DoE justifying the rated average life and battery charging efficiency to be in line with methodological requirements.</p> <p>A minimum of 1 year warranty was found mentioned on the warranty cards and the lamps boxes and is deemed in line with methodology requirements.</p> <p>The CPAI shall monitor the number of project lamps per household/business location and hence can suitably ensure compliance with para 8 of AMS III.AR. ver 03.</p> <p>The CPA (and the PoA) has been found appropriately revised to small-scale CPA as per latest Guidelines for demonstrating additionality of small scale project activities, ver 09. Relevant sections of the CPA DD were observed as correctly revised in line with the aforesaid guideline.</p> <p>Hence the CL is closed.</p> |

| Corrective action and/ or clarification requests   | Reference to Table 2 | Response by project participants  | Validation Conclusion  |
|--|----------------------|---|--|
|  |                      | <p>reaches a maximum of 250,000 and no more lamps shall be attributed to it. Subsequent lamp sales shall form a part of the next CPA which shall be capped to include 250000 lamps only. Thus, for each size of 250,000 lamps sold, a new CPA shall be created by CME.</p> <p><b>Reply from PP: 13 Dec 2012</b><br/>Please refer to response CAR 6 and CAR 16.</p>  |  |
| <p>CL 7</p> <p>In Annex 2, reference is given to section A 4.2.2 and E 5.2. Project participant may clarify why reference is provided to these sections.</p> | Table 2A, Annex 2    | <p>The section has been revised not to mention reference to section A.4.2.2 and E.5.2 being typographical errors.</p> <p><b>Reply from PP: 01 May 2012</b><br/>The PoA-DD has been revised to remove reference to section E.5.2. Section A.4.2.2 enlists the eligibility criteria for inclusion if the CPA. One of the criteria for inclusion is that the CPA shall not result in diversion of ODA – which may be related to the concept public funding. Hence, in Annex 2, reference is given to section A.4.2.2. of the PoA-DD.</p> | <p>In Annex 2 of PoA-DD, reference is given to section A 4.2.2 and E 5.2. Project participant may clarify why reference is provided to these sections.</p> <p>Project participant has removed reference to section E 5.2 in Annex 2. Reference is provided to section A 4.2.2 and A 4.5 which is correct, hence the CL is closed</p> |
| <p>CL 8</p> <p>Project participant is requested to provide supporting documents for design specifications of lamps given in section A.4 of CPA-DD.</p>       | Table 2B, A 4.1      | <p>In addition to documentation provided against CL6, please refer to the following documents:</p> <ol style="list-style-type: none"> <li>1. GreenlightSunkingPro_specifications</li> <li>2. SunKing_Lifetime test report</li> <li>3. Greenlight_Sunking_specification</li> </ol> <p><b>Reply from PP: 01 May 2012</b><br/>The design specifications have been revised to make them consistent with the</p>   | <p>The design specifications do not match with the documents provided.</p> <hr/> <p>The design specifications have been revised and they are matching with the manufacturer certificate provided, hence</p>  |

| Corrective action and/ or clarification requests  | Reference to Table 2 | Response by project participants   | Validation Conclusion  |
|---|----------------------|--|--|
|   |                      | documents mentioned above. Please refer the revised CPA-DD.  | the CL is closed   |
| <p>CL 9</p> <p>Operational lifetime is stated as 21 years. Project participant is requested to provide supporting documents for operational lifetime.</p> | Table 2B, A 4.2.2    | <p>The operational lifetime of CPA is stated as 21 years in light of the selected 7 year renewable crediting period, renewable twice.</p> <p>Although the operational lifetime of lamps would be lesser than the crediting period, in the likelihood of expired lamps being replaced by new lamps, the CPA shall remain operational and generate CERs over the entire crediting period.</p> <p>In no case however, the operational lifetime of CPA shall extend the lifetime of the PoA (28 years).</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>There is no separate document to support the operational lifetime of the CPA, except the CPA-DD itself. As clarified above, the operational lifetime of the CPA is mentioned in relation to the extent of the crediting period (7 year renewable crediting period, renewable twice) and is applicable in a case where expired lamps would be replaced by new lamps and hence, the CPA as such, shall remain operational and generate CERs over the entire crediting period.</p> <p>For operational life of the lamp, please refer para 10 of the methodology, which assumes that the lamps shall operate for two years after project lamp distribution to end-users.</p> | <p>Project participant is requested to provide supporting documents for operational lifetime</p> <hr/> <p>The reply provided is not clear. Supporting document for operational lifetime is not provided.</p> <hr/> <p>The justification provided by the PP is deemed appropriate and hence the CL is closed.</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2 | Response by project participants   | Validation Conclusion  |
|---|----------------------|--|--|
|   |                      | <p><b>Reply from PP: 13 Dec 2012</b></p> <p>Please refer to the response dated 01 May 2012. As stated therein, there is no separate document to support the operational lifetime of the CPA.</p> <p>Please also refer to the CPA-DD template section A.4.2.2. which reads "Expected operational lifetime of the small-scale CPA". Please note the section requests for the operational lifetime of the CPA and not the lamp.</p> <p>Since the CPA can potentially, continue to operate and hence accrue credits upto its crediting period of 21 (7 year renewable crediting period, renewable twice) years, the operating lifetime of the CPA is mentioned to be 21 years. In addition, the operational lifetime of a CPA shall not exceed the crediting period of the PoA, i.e. for a CPA starting in 20<sup>th</sup> year of PoA, the CPA lifetime shall be limited to only 8 years to not allow it to exceed beyond the lifetime of PoA (28 years). This has been explained in the CPA-DD section A.4.2.2. For further details, please refer the responses above.</p> |  |
| <p>CL 10</p> <p>Reference is provided to section E.4 of PoA DD in Annex 3 of CPA-DD. Project participant is requested to clarify the same</p> | Table 2B, Annex3     | <p>Section E.4 of the PoA-DD provides baseline information for the PoA. The same has been referred to in absence of a specific baseline section in CPA-DD.</p> <p><b>Reply from PP: 01 May 2012</b></p> <p>The baseline is established at the PoA level and does not vary CPA to CPA. Therefore, the baseline of the CPA is identical to the baseline of the PoA.</p>  | <p>In line with requirements of CPA-DD template, project participant has not mentioned baseline in Annex 3 of CPA-DD</p> <hr/> <p>The baseline details are mentioned but the reference cited show that kerosene is</p> |

| Corrective action and/ or clarification requests  | Reference to Table 2 | Response by project participants   | Validation Conclusion  |
|---|----------------------|--|--|
|   |                      | <p>Hence, no additional information is required for Annex 3 of the CPA-DD. Hence, it is appropriate to refer the relevant section of PoA-DD in Annex 3 of the CPA-DD. The figures quoted in the PoA-DD have been further elaborated in the revised CPA-DD.</p> <p><b>Reply from PP: 13 Dec 2012</b><br/>Please refer to the revised CPA-DD, The CPA boundary shall be determined at the CPA level. In the CPA region kerosene is indeed being used (in ~66% of the total households) as the predominant source of lighting demonstrated using published literature from national official sources.</p> | <p>the not the prevalent source of lighting in certain states in India for eg: the percentage of household using kerosene in NCT of Delhi is less than 1% whereas the PoA boundary is India..</p> <hr/> <p>The Boundary of CPA 1 has been reduced from India to the states of Uttar Pradesh, Bihar, Jharkhand, Odisha and Assam. The % of households using kerosene as primary source of lighting in each of these individual states can be deemed as common practice with an overall ~66% households using kerosene as primary source of lighting in the CPA region. Thus, it is ensured as per para 6(a) of the methodology AMS III.AR version 03, that the CPA shall ensure replacement of fossil fuel based lamps.</p> <p>Further as this has been developed as an inclusion eligibility criteria, as mentioned in the section A.4.2.2 of the revised PoA-DD, hence the same is also ensured for all the CPAs</p> <p>Hence the CL is closed.</p> |
| <p>CL 11</p> <p>Project participant is requested to clarify the information provided in Annex 4 of CPA-DD. It is stated that this is only applicable for CPAs using option 2 for determining useful lifetime of project lamp.</p> | Table 2B, Annex4     | As per AMS III.AR version 01, the ex-post monitoring surveys are required only in case of CPAs under option 2 of para 11 of the methodology. The same has therefore been clarified in the CPA-DD.  | The project participant has clarified that CPA is using option 1 in Annex 4 of CPA-DD and sampling plan is applicable for CPAs using Option 2. As the above mentioned clarifications have been made, the CL is closed.   |



**TABLE 4 FORWARD ACTION REQUEST**

| Forward action request  | Reference to Table 2                      | Response by project participants<br>Validation Conclusion   |
|---|---|---|
| <p>FAR 1</p> <p>During the first verification, serial number of lamps belonging to the specific CPA DD shall be checked</p>   | Table 2A, A 4.1.2.1, A 4.1.2.2, A 4.1.2.3 | OK.   |
| <p>FAR 2</p> <p>It shall be checked that not more than 250000 lamps have been sold in the specific CPA-DD and it remains under the limit of micro-scale project activities.</p> <hr/> <p>FAR 2 (Revised)</p> <p>It shall be checked that not more than 652173 lamps have been sold in the specific CPA-DD and it remains under the limit of small-scale project activities.</p> | Table 2A, A 4.1.2.1, A 4.1.2.2, A 4.1.2.3 | <p><b>13 Dec 2012</b></p> <p>Please revise the FAR to limit the number of lamps to 652173 per CPA as the PoA has been revised from micro-scale to small scale PoA in line with latest Guidelines for demonstrating the additionality of small scale project activities, version 09.</p> <p>OK</p> |



RINA

## CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:  
*We declare that Mr/Mrs/Ms:*

**Naresh Badhwar**

è qualificato come<sup>1</sup>:  
*is qualified as:*

**CDM-TEC, CDM-VAL, CDM-TL, CDM-FIN-EXP,  
VCS-TEC, VCS-VAL, VCS-TL,  
GS-TEC, GS-VAL, GS-TL, JI-TEC, SCS-TEC**

per le seguenti aree tecniche:  
*for the following technical areas:*

**1.2, 13.1**

| AREE TECNICHE<br>TECHNICAL AREAS | DESCRIZIONE DELL'AREA TECNICA<br>TECHNICAL AREA DESCRIPTION | SCOPO SETTORIALE<br>SECTORAL SCOPE |
|----------------------------------|---|------------------------------------|
| 1.2                              | Energy generation from renewable energy sources             | 1                                  |
| 13.1                             | Waste handling and disposal                                 | 13                                 |

in accordo alle istruzioni della Divisione Certificazione.  
*in accordance with the instructions of the Certification Division.*

| REVISIONE<br>REVISION | DATA<br>DATE | MOTIVAZIONI PER LA REVISIONE<br>REASON FOR THE REVISION |
|-----------------------|--------------|---|
| 0                     | 06-06-2011   | --  |
| 1                     | 01-06-2012   | Annual revision   |

Il Resp. QPT  
*Head of QPT*

<sup>1</sup> Legend:

VAL: Validator  
VER: Verifier  
TEC: Technical Expert  
TL: Team Leader  
FIN-EXP: Financial Expert  
DET: Determiner

CDM: Clean Development Mechanism  
VCS: Verified Carbon Standard:  
GS: Gold Standard  
SCS: SocialCarbon Standard  
JI: Joint Implementation

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*RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports*



RINA

## CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:  
We declare that Mr/Mrs/Ms:

Ashok Kumar

è qualificato come<sup>1</sup>:  
is qualified as:

CDM (TEC, VAL, TL, FIN-EXP) VCS (TEC, VAL, VER, TL)  
GS, SCS, (TEC, VAL, VER, TL)  
JI-TEC

per le seguenti aree tecniche:  
for the following technical areas:

1.2, 13.1

| AREE TECNICHE<br>TECHNICAL AREAS | DESCRIZIONE DELL'AREA TECNICA<br>TECHNICAL AREA DESCRIPTION | SCOPO SETTORIALE<br>SECTORAL SCOPE |
|----------------------------------|---|------------------------------------|
| 1.2                              | Energy generation from renewable energy sources             | 1                                  |
| 13.1                             | Waste Handling and Disposal                                 | 13                                 |

in accordo alle istruzioni della Divisione Certificazione.  
in accordance with the instructions of the Certification Division.

| REVISIONE<br>REVISION | DATA<br>DATE | MOTIVAZIONI PER LA REVISIONE<br>REASON FOR THE REVISION |
|-----------------------|--------------|---|
| 0                     | 30-01-2009   | -   |
| 9                     | 01-06-2012   | Annual revision   |

Il Resp. QPT  
Head of QPT

<sup>1</sup> Legend:

VAL: Validator  
VER: Verifier  
TEC: Technical Expert  
TL: Team Leader  
FIN-EXP: Financial Expert  
DET: Determiner

CDM: Clean Development Mechanism  
VCS: Verified Carbon Standard  
GS: Gold Standard  
SCS: SocialCarbon Standard  
JI: Joint Implementation

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RINA

## CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:  
We declare that Mr/Mrs/Ms:

Saurabh Mittal

è qualificato come<sup>1</sup>:  
is qualified as:

CDM-TEC, CDM-VAL, CDM-VER  
VCS (-TEC, -VAL, -VER)  
GS/JI/SCS - TEC

per le seguenti aree tecniche:  
for the following technical areas:

1.1, 2.1, 4.3, 4.10

| AREE TECNICHE<br>TECHNICAL AREAS | DESCRIZIONE DELL'AREA TECNICA<br>TECHNICAL AREA DESCRIPTION   | SCOPO SETTORIALE<br>SECTORAL SCOPE |
|----------------------------------|---|------------------------------------|
| 1.1                              | Thermal energy generation from fossil fuels and biomass including thermal electricity from solar  | 1                                  |
| 2.1                              | Electricity Distribution  | 2                                  |
| 4.3                              | Iron and steel  | 4                                  |
| 4.10                             | Fuel switching and/or energy efficiency and/or waste heat/gas/pressure recovered and utilization for power generation at manufacturing industries | 4                                  |

in accordo alle istruzioni della Divisione Certificazione.  
in accordance with the instructions of the Certification Division.

| REVISIONE<br>REVISION | DATA<br>DATE | MOTIVAZIONI PER LA REVISIONE<br>REASON FOR THE REVISION |
|-----------------------|--------------|---|
| 0                     | 09-12-2010   | -   |
| 5                     | 01-06-2012   | Annual revision   |

Il Resp. QPT  
Head of QPT

<sup>1</sup> Legend:

VAL: Validator  
VER: Verifier  
TEC: Technical Expert  
TL: Team Leader  
FIN-EXP: Financial Expert  
DET: Determiner

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GS: Gold Standard  
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RINA

## CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:  
We declare that Mr/Mrs/Ms:

Champok Buragohain

è qualificato come<sup>1</sup>:  
is qualified as:

CDM/VCS/GS/JI/SCS-TEC, CDM-VAL

per le seguenti aree tecniche:  
for the following technical areas:

1.2, 2.1, 13.2, 15.2

| AREE TECNICHE<br>TECHNICAL AREAS | DESCRIZIONE DELL'AREA TECNICA<br>TECHNICAL AREA DESCRIPTION | SCOPO SETTORIALE<br>SECTORAL SCOPE |
|----------------------------------|---|------------------------------------|
| 1.2                              | Energy generation from renewable energy sources             | 1                                  |
| 2.1                              | Electricity distribution                                    | 2                                  |
| 13.2                             | Animal Waste Management                                     | 13                                 |
| 15.2                             | Animal Waste Management                                     | 15                                 |

in accordo alle istruzioni della Divisione Certificazione.  
in accordance with the instructions of the Certification Division.

| REVISIONE<br>REVISION | DATA<br>DATE | MOTIVAZIONI PER LA REVISIONE<br>REASON FOR THE REVISION |
|-----------------------|--------------|---|
| 0                     | 19-01-2011   | -   |
| 4                     | 01-06-2012   | Annual revision   |

Il Resp. QPT  
Head of QPT

<sup>1</sup> Legend:

VAL: Validator  
VER: Verifier  
TEC: Technical Expert  
TL: Team Leader  
FIN-EXP: Financial Expert  
DET: Determiner

CDM: Clean Development Mechanism  
VCS: Verified Carbon Standard  
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SCS: SocialCarbon Standard  
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RINA

**CERTIFICATO DI QUALIFICA  
QUALIFICATION CERTIFICATE**

Si attesta che il sig./sig.ra:  
*We declare that Mr/Mrs/Ms:*

**Karthika Varma**

è qualificato come<sup>1</sup>:  
*is qualified as:*

**CDM-FIN-EXP**

per le seguenti aree tecniche:  
*for the following technical areas:*

-

| AREE TECNICHE<br>TECHNICAL AREAS | DESCRIZIONE DELL'AREA TECNICA<br>TECHNICAL AREA DESCRIPTION | SCOPO SETTORIALE<br>SECTORAL SCOPE |
|----------------------------------|---|------------------------------------|
| -                                | -   | -                                  |

in accordo alle istruzioni della Divisione Certificazione.  
*in accordance with the instructions of the Certification Division.*

| REVISIONE<br>REVISION | DATA<br>DATE | MOTIVAZIONI PER LA REVISIONE<br>REASON FOR THE REVISION |
|-----------------------|--------------|---|
| 0                     | 20-10-2010   | -   |
| 2                     | 01-06-2012   | Annual revision   |

Il Resp. QPT  
*Head of QPT*

<sup>1</sup> Legend:

VAL: Validator  
VER: Verifier  
TEC: Technical Expert  
TL: Team Leader  
FIN-EXP: Financial Expert  
DET: Determiner

CDM: Clean Development Mechanism  
VCS: Verified Carbon Standard:  
GS: Gold Standard  
SCS: SocialCarbon Standard  
JI: Joint Implementation

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RINA

## CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:

**A. Cyril Augustus Arokiasamy**

*We declare that Mr/Mrs/Ms:*

è qualificato come<sup>1</sup>:  
is qualified as:

**CDM-TEC, CDM-VAL, CDM-VER, CDM-TL, CDM-FIN-EXP,  
GS-VAL, GS-VER, GS-TL, SCS-VAL, SCS-VER, SCS-TL  
VCS-TEC, JI-TEC**

per le seguenti aree tecniche:  
for the following technical areas:

**1.1, 1.2, 2.2, 3.1, 4.5, 4.10, 5.1, 11.1, 13.1**

| AREE TECNICHE<br>TECHNICAL AREAS | DESCRIZIONE DELL'AREA TECNICA<br>TECHNICAL AREA DESCRIPTION   | SCOPO SETTORIALE<br>SECTORAL SCOPE |
|----------------------------------|---|------------------------------------|
| 1.1                              | Thermal energy generation from fossil fuel and biomass including thermal electricity from solar   | 1                                  |
| 1.2                              | Energy generation from renewable energy sources   | 1                                  |
| 2.2                              | Heat Distribution   | 2                                  |
| 3.1                              | Energy Demand   | 3                                  |
| 4.5                              | Rubber and Plastics   | 4                                  |
| 4.10                             | Fuel switching and/or energy efficiency and/or waste heat/gas/pressure recovered and utilization for power generation at manufacturing industries | 4                                  |
| 5.1                              | Chemical process industries   | 5                                  |
| 11.1                             | Chemical process industries   | 11                                 |
| 13.1                             | Waste Handling and Disposal   | 13                                 |

in accordo alle istruzioni della Divisione Certificazione.  
*in accordance with the instructions of the Certification Division.*

| REVISIONE<br>REVISION | DATA<br>DATE | MOTIVAZIONI PER LA REVISIONE<br>REASON FOR THE REVISION |
|-----------------------|--------------|---|
| 0                     | 30-06-2010   | -   |
| 8                     | 08-06-2012   | Updating qualification in TA 1.2                        |

Il Resp. QPT  
Head of QPT

<sup>1</sup> Legend:

VAL: Validator  
VER: Verifier  
TEC: Technical Expert  
TL: Team Leader  
FIN-EXP: Financial Expert  
DET: Determiner

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VCS: Verified Carbon Standard:  
GS: Gold Standard  
SCS: SocialCarbon Standard  
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RINA

## CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:  
We declare that Mr/Mrs/Ms:

Rita Valoroso

è qualificato come1:  
is qualified as:

CDM-TEC, CDM-VAL, CDM-VER, CDM-TL, CDM-FIN-EXP  
VCS-TEC, VCS-VAL, VCS-VER, VCS-TL  
GS-TEC, GS-VAL, GS-VER, GS-TL  
SCS-TEC, SCS-VAL, SCS-VER, SCS-TL  
JI-TEC

per le seguenti aree tecniche:  
for the following technical areas:

1.2, 13.1

| AREE TECNICHE<br>TECHNICAL AREAS | DESCRIZIONE DELL'AREA TECNICA<br>TECHNICAL AREA DESCRIPTION | SCOPO SETTORIALE<br>SECTORAL SCOPE |
|----------------------------------|---|------------------------------------|
| 1.2                              | Energy generation from renewable Energy sources             | 1                                  |
| 13.1                             | Waste Handling and Disposal                                 | 13                                 |

in accordo alle istruzioni della Divisione Certificazione.  
in accordance with the instructions of the Certification Division.

| REVISIONE<br>REVISION | DATA<br>DATE | MOTIVAZIONI PER LA REVISIONE<br>REASON FOR THE REVISION |
|-----------------------|--------------|---|
| 0                     | 18-01-10     | -   |
| 6                     | 13-07-12     | Annual revision   |

Il Resp. QPT  
Head of QPT

<sup>1</sup> Legend:

VAL: Validator  
VER: Verifier  
TEC: Technical Expert  
TL: Team Leader  
FIN-EXP: Financial Expert  
DET: Determiner

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VCS: Verified Carbon Standard  
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SCS: SocialCarbon Standard  
JI: Joint Implementation

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