# SHINE – DISTRIBUTION OF LED LIGHTBULBS IN INDIA -2

Document Prepared By

Carbon Check (India) Private Ltd.

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## Summary:

A brief description of the verification and the project

**Verification:** Carbon Check (India) Private Ltd. (CCIPL) has been contracted by Brightspark Energy Private Limited, the project proponent, to carry out the verification of voluntary greenhouse gas emission reductions generated by the Project Activity Instances, under the grouped project" SHINE- Distribution of LED Lightbulbs in India -2". The verification is based on the desk review of the Monitoring report /01/, registered VCS PD and the corresponding validation report /15/, supporting emission reduction calculation spread sheets /02/ and other relevant supporting documents made available to the verification team by the project proponent accompanied by on-site interviews. This verification involves the monitoring period from 01-January-2021 to 31-May-2022.

**Project:** The project "SHINE – Distribution of LED Lightbulbs in India-2", is a grouped project which employs CDM methodology AMS-II.C.: Demand-side energy efficiency activities for specific technologies --- Version 15.0. The project involves distribution of Light Emitting Diodes (LEDs) for domestic lighting in North-East Indian states of Tripura, Assam, Meghalaya, Arunachal Pradesh, Mizoram, Manipur, and Nagaland. The

project result in reduction of $CO_2$ emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

The purpose and scope of verification:

**Purpose:** The purpose of the verification is to review the monitoring results and verify that monitoring methodology was implemented in accordance with the monitoring plan and monitoring data, used to confirm the reductions in anthropogenic emissions by sources are sufficient, definitive, and presented in a concise and transparent manner. Monitoring plan, monitoring report and project compliance with relevant VCS, UNFCCC and host party criteria are particularly verified to confirm that the project has been implemented in accordance with previously registered design and conservative assumptions, as documented.

**Scope:** The scope of the verification is:

- To verify the project implementation and operation with respect to the registered VCS PD.
- To verify the implemented monitoring plan with the registered VCS PD and applied baseline and monitoring methodology.
- To verify that the actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that the reported emission reductions are complete and accurate to be certified.

The method and criteria used for verification

(a) Desk review, involving:

(i) Review of the data and information presented to verify their completeness.

(ii) Review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures.

(iii) Evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

(b) On-site assessment involving:

(i) Assessment of the implementation and operation of the proposed VCS grouped project activity as per the registered VCS PD.

(ii) Review of information flows for generating, aggregating, and reporting the monitoring parameters.

(iii) Interview with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the monitoring plan in the registered VCS PD;

(iv) A cross-check between information provided in the monitoring report and data from other sources such as inventories, purchase records, or similar data sources;

(v) A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the VCS PD and the selected methodology;

(vi) Review of calculations and assumptions made in determining the GHG data and emission reductions;

(vii) Identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The number of findings raised during verification

5 CLs and 2 CARs

No uncertainties associated with the verification, All the findings have been successfully resolved.

Summary of the verification conclusion

In CCIPL's opinion, the emission reductions reported for the "SHINE – Distribution of LED Lightbulbs in India-2" in the monitoring report are fairly and correctly stated. CCIPL is therefore able to certify that the emission reductions from the "SHINE – Distribution of LED Lightbulbs in India-2" during the period from 01-January-2021 to 31-May-2022, amount to 278,782 tCO2 equivalent.

# 1 CONTENTS

# 1 INTRODUCTION

## 1.1 Objective

Carbon Check (India) Private Ltd. (CCIPL) has been contracted by Brightspark Energy Private Limited, the Project Proponent (PP), to undertake the verification of the project titled "SHINE- Distribution of LED Lightbulbs in India -2" for the monitoring period 01-January-2021 to 31-May-2022 (including both days). Through the verification activities, it is to be confirmed that:

•The project is implemented as described in the VCS Project Description document /15/;

•The monitoring system is implemented and fully functional to generate emission reductions without any double counting, and

•The data reported are accurate, complete, consistent, transparent, and free of material error or omission by checking the monitoring records and the emissions reductions calculation.

The verification followed the requirements of the current version of the VCS Standard Version 4.3 and VCS program guide (version 4.2)/B01/ to ensure the quality and consistency of the verification work and the report.

## 1.2 Scope and Criteria

The verification of this project is based on the Monitoring Report of this monitoring period /01-b/, registered VCS PD /15/, Emission reduction calculation spreadsheets /02-b/, supporting documents made available to the verifier /03/ – /17/ and information collected through performing onsite visit interviews. Furthermore, publicly available information was considered as far as available and required.

CCIPL has employed a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

The verification is carried out on basis of the following requirements, applicable for this project activity:

- VCS Standard (v4.3) /B01/
- VCS Program Guide (v4.2) /B01/
- CDM Methodology: AMS-II.C.: Demand-side energy efficiency activities for specific technologies --- Version 15.0 /B02/
- Methodology: AMS-I. D: Grid connected renewable electricity generation; Version 18.0
- Standard: CDM project standard for Programmes of activities Version 03.0

- Methodological tool 19: Demonstration of additionality of microscale project activities Version 10.0
- Methodological tool 21: Demonstration of additionality of small-scale project activities Version 13.1
- Guideline: General guidelines for SSC CDM methodologies Version 23.1
- Other relevant rules, including the host country legislation

The scope of this verification, by independent checking of objective evidence, is as follows:

- To verify that the project is implemented as described in the registered VCS PD.
- To assess the project's compliance with other relevant rules including the host country legislation.
- To confirm that the monitoring system is implemented and fully functional to generate voluntary emission reductions without any double counting.
- To establish that the data reported are accurate, complete, consistent, transparent, and free of material error or omission by checking the monitoring records and the emissions reduction calculation.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.
- The verification shall ensure that the reported emission reductions are complete and accurate to be certified.

The method and criteria used for verification consisted of the following phases:

1. Completeness check and desk review;
2. On-site interviews with stakeholders;
3. Resolution of outstanding issues and issuance of final verification report and applicable VCS Validation and Verification Deeds of Representation.

CCIPL conducts all its work under strict rules to safeguard impartiality and ensure the independence of the verification team. The verification team VVBs not provide any consulting or recommendations for the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

## 1.3 Level of Assurance

The verification report is based on the Monitoring report /1-a/, registered VCS PD /15/, supporting documents /03/-/17/ made available to the verifier and information collected through performing interviews.

The verification has been planned and organised to achieve a:

☒ Reasonable level of assurance as per VCS Standard (v4.3)

☐ Limited level of assurance

The threshold for quantitative materiality with respect to the aggregate of errors, omissions, and misrepresentations, relative to the total reported GHG emission reductions and/or removals was limited to five percent, as required by section 4.1.8 of the VCS Standard version 4.3 /B01/.

## 1.4 Summary Description of the Project

This is the first monitoring report for the project "SHINE- Distribution of LED Lightbulbs in India -2", which is a grouped project and employs the methodology; AMS-II.C, Version 15 /B02/. The grouped project involves distribution of Light Emitting Diodes (LEDs) for domestic lighting in North-East Indian states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura. Thus, under this grouped project, 60W ICL have been replaced with 7W/9W LED and 100W ICL with 12W/14W LED as the lumen output is within the specified limit. Each household has received maximum six LEDs under this grouped project. Total 1,411,863 LEDs have been distributed to 246,104 grid connected households in the state of Assam and Tripura till the end of first monitoring period under VCS. No further distribution of project LEDs has been planned under this grouped project. The grouped project has been divided into six project activity instances based on the electricity division and subdivision in which LED distribution has been carried out by Project Proponent. The start date for the grouped project is 12-August-2018 /03/ which is the date when the first energy efficient LED has been distributed.

The project proponent for the project activity Brightspark Energy Private Limited, owns the rights to VERs /05//14/.

The total estimated GHG emission reductions achieved from Project activity instances are 278,782 $tCO_2e$ for this monitoring period.

The project activity has been implemented as described in the registered VCS PD and the emission reductions are calculated conservatively as per the applied methodologies /B02/.

# 2 VERIFICATION PROCESS

## 2.1 Method and Criteria

During the document review, CCIPL has applied standard auditing techniques to assess the quality of information provided. The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included:

•A review of data and information presented by the PP to verify their completeness

•A review of the MP and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and

•An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs.

The monitoring report (version 1 dated 08-September-2022) /01-a/ was initially reviewed and CCIPL requested the PP to present the supporting information and documents /03/-/20/. The documents were reviewed by CCIPL. Through the process of the verification, the revised monitoring report and the supporting documents were evaluated to confirm the actions taken by the PP to the CARs and CLs issued by the verification team.

The list of documents referred during the course of this verification has been provided in Appendix-1.1.

## 2.2 Document Review

During the document review, CCIPL has applied standard auditing techniques to assess the quality of information provided. The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included:

•A review of data and information presented by the PP to verify their completeness

•A review of the MP and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and

•An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs.

The monitoring report (version 1 dated 08-September-2022) /01/ was initially reviewed and CCIPL requested the PP to present the supporting information and documents /03/-/17/. The documents were reviewed by CCIPL. Through the process of the verification, the revised monitoring report and the supporting documents were evaluated to confirm the actions taken by the PP to the CARs and CLs issued by the verification team.

The list of documents referred during the course of this verification has been provided in Appendix-1.1.

## 2.3 Interviews

The table below describes the onsite interview process and further identifies personnel, including their roles, who were interviewed and/or provided information additional to that provided in the project description /01/ and any supporting documents.

| SR. No. | Date | Name | Organisation | Topic | Persons Interviewed |
|---|---|---|---|---|---|
| /1/ | 26-September-2022 | Neha Oli | C-Quest Capital (CQC) | • Project Design<br>• Project Implementation status<br>• Project start date and Project Location<br>• Baseline Scenario<br>• Baseline Identification and Additionality<br>• Qualification and Training<br>• Monitoring and reporting documentation<br>• Quality Assurance – Management and operating system<br>• Social and Environmental Impacts<br>• Local Stakeholders meeting process<br>• Compliance with relevant laws<br>• Roles and responsibility | Pallavi Gedam and Campal Kadam |
| /2/ | 26-September-2022 | Rajib Biswas | C-Quest Capital (CQC) - Operations | • Project Design<br>• Project Implementation status<br>• Project start date and Project Location<br>• Baseline Scenario<br>• Baseline Identification and Additionality<br>• Qualification and Training<br>• Monitoring and reporting documentation<br>• Quality Assurance – Management and operating system | Pallavi Gedam and Campal Kadam |

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| | | | | • Social and Environmental Impacts<br>• Local Stakeholders meeting process<br>• Compliance with relevant laws<br>• Roles and responsibility | |
| /3/ | 26-September-2022 | Kishore Das | C-Quest Capital (CQC) - Operations | • Project Design<br>• Project Implementation status<br>• Project start date and Project Location<br>• Baseline Scenario<br>• Baseline Identification and Additionality<br>• Qualification and Training<br>• Monitoring and reporting documentation<br>• Quality Assurance – Management and operating system<br>• Social and Environmental Impacts<br>• Local Stakeholders meeting process<br>• Compliance with relevant laws<br>• Roles and responsibility | Pallavi Gedam and Campal Kadam |
| /4/ | 26-September-2022 | Prabir Bhattacharjee | MB enterprises | • Project Design<br>• Project Implementation status<br>• Project start date and Project Location<br>• Baseline Scenario<br>• Baseline Identification and Additionality<br>• Qualification and Training<br>• Monitoring and reporting documentation | Pallavi Gedam and Campal Kadam |

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| | | | | • Quality Assurance – Management and operating system<br>• Social and Environmental Impacts<br>• Local Stakeholders meeting process<br>• Compliance with relevant laws<br>Roles and responsibility | |
| /5/ | 26-September-2022 | Sumi Ahmed | MB enterprises | • Project Design<br>• Project Implementation status<br>• Project start date and Project Location<br>• Baseline Scenario<br>• Baseline Identification and Additionality<br>• Qualification and Training<br>• Monitoring and reporting documentation<br>• Quality Assurance – Management and operating system<br>• Social and Environmental Impacts<br>• Local Stakeholders meeting process<br>• Compliance with relevant laws<br>Roles and responsibility | Pallavi Gedam and Campal Kadam |
| /6/ | 26-September-2022 | Nitul Talukdar | MB enterprises | • Project Design<br>• Project Implementation status<br>• Project start date and Project Location<br>• Baseline Scenario<br>• Baseline Identification and Additionality<br>• Qualification and Training | Pallavi Gedam and Campal Kadam |

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|---|---|---|---|---|---|
| | | | | • Monitoring and reporting documentation<br>• Quality Assurance – Management and operating system<br>• Social and Environmental Impacts<br>• Local Stakeholders meeting process<br>• Compliance with relevant laws<br>Roles and responsibility | |
| /7/ | 27-September-2022 | Kanti Gopal Debnath | Clean Rural Development | • Project Design<br>• Project Implementation status<br>• Project start date and Project Location<br>• Baseline Scenario<br>• Baseline Identification and Additionality<br>• Qualification and Training<br>• Monitoring and reporting documentation<br>• Quality Assurance – Management and operating system<br>• Social and Environmental Impacts<br>• Local Stakeholders meeting process<br>• Compliance with relevant laws<br>Roles and responsibility | Pallavi Gedam and Campal Kadam |
| /8/ | 27-September-2022 | Parimal Nath | Clean Rural Development | • Project Design<br>• Project Implementation status<br>• Project start date and Project Location<br>• Baseline Scenario<br>• Baseline Identification and Additionality<br>• Qualification and Training | Pallavi Gedam and Campal Kadam |

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| | | | | • Monitoring and reporting documentation<br>• Quality Assurance – Management and operating system<br>• Social and Environmental Impacts<br>• Local Stakeholders meeting process<br>• Compliance with relevant laws<br>Roles and responsibility | |
| /9/ | 27-September-2022 | Banomali Nath | Clean Rural Development | • Project Design<br>• Project Implementation status<br>• Project start date and Project Location<br>• Baseline Scenario<br>• Baseline Identification and Additionality<br>• Qualification and Training<br>• Monitoring and reporting documentation<br>• Quality Assurance – Management and operating system<br>• Social and Environmental Impacts<br>• Local Stakeholders meeting process<br>• Compliance with relevant laws<br>Roles and responsibility | Pallavi Gedam and Campal Kadam |
| /10/ | 26-September-2022 | Bimal Kalita | End user | To check:<br>Average annual operating hours of project LEDs($O_{i\ project}$)<br>Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |
| /11/ | 26-September-2022 | Hima Borah | End user | To check:<br>Average annual operating hours of project LEDs($O_{i\ project}$) | Pallavi Gedam and Campal Kadam |

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| | | | | Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | |
| /12/ | 26-September-2022 | Unisar Rahman | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |
| /11/ | 26-September-2022 | Dipul Barman | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |
| /12/ | 28-September-2022 | Ashwini Debnath | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |
| /13/ | 28-September-2022 | Gopal Debnath | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |
| /14/ | 28-September-2022 | Nibash Paul | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |
| /15/ | 28-September-2022 | Subash Ch. Das | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |

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| /16/ | 28-September-2022 | Sushanta Chakraborty | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |
| /17/ | 28-September-2022 | Dipty Nath | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |
| /18/ | 28-September-2022 | Gopal Das | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |
| /19/ | 28-September-2022 | Ranjit Nath | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |
| /20/ | 28-September-2022 | Mohan Ch. Nath | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |
| /21/ | 28-September-2022 | Nanigopal Debnath | End user | To check: Average annual operating hours of project LEDs($O_{i\ project}$) Number of group i project LEDs that are operational during time interval 't' ($n_{i\ operational}$) | Pallavi Gedam and Campal Kadam |

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| /22/ | 17-October-2022 | Gurjeet Singh | CPASS (Third Party ) Assam | • Discussion on monitoring survey process done by third party and<br>• Grievance received during the monitoring survey | Pallavi Gedam and Campal Kadam |
| /23/ | 17-October-2022 | Chandraketu Sarkar | CPASS (Third Party )Tripura | • Discussion on monitoring survey process done by third party and<br>• Grievance received during the monitoring survey | Pallavi Gedam and Campal Kadam |
| /24/ | 17-October-2022 | Rajan Das | CPASS (Third Party )Tripura | • Discussion on monitoring survey process done by third party and<br>• Grievance received during the monitoring survey | Pallavi Gedam and Campal Kadam |
| /25/ | 29-September-2022 | Akash Mishra | Led bulbs supplier (SEWA) | Discussion on supply of LED and lamp life quality check | Pallavi Gedam and Campal Kadam |
| /26/ | 28-September-2022 | Amit Chaudhary | Led bulbs supplier (syska) | Discussion on supply of LED and lamp life quality check | Pallavi Gedam and Campal Kadam |
| /27/ | 29-September-2022 | Navad Ali | EWI( electronic waste India) | Discussion on the destruction of ICL | Pallavi Gedam and Campal Kadam |
| /28/ | 28-September-2022 | Vivek | MMSM | Discussion on distribution of LED and lamp life quality check | Pallavi Gedam and Campal Kadam |

## 2.4 Site Inspections

As discussed in the above section 2.3, an on-site visit was undertaken by the validation team from 26-September-2022 to 29-September-2022 carry out the following; -

- An assessment of the project design and technical specification, project location, project boundary, additionality, baseline scenario, baseline methodology, GHG emissions quantification and implementation status and operation of the project activity as per the PD.
- A review of information flows for generating, aggregating, and reporting the monitoring parameters and monitoring methodology.
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PD;
- The assessment team has verified sufficient appropriate audit evidence, to reduce audit risk to an acceptably low level as requisite to achieve reasonable level of assurance for the current verification.

In line with paragraph 26 of the Sampling Standard, the verification team has applied acceptance sampling approach through on-site interviews on the sampling survey as part of verification. The project participant had applied sampling approach. A representative Monitoring survey /07/ was conducted by the representatives of Project participant. The verification team has chosen acceptance sampling in accordance with paragraph 28 of the sampling standard /B04/.

Applying paragraph 39 of the sampling standard, version 09 /B04/, a sample size of 11 LEDs was chosen from each stratum (7W, 12W, 9W and 14 W) (with no discrepant records). A sample size of 11 was determined, based on an AQL of 0.5% and UQL of 20%, producer risk 10% and consumer risk 10%. Acceptance number thus determined for the sample is 0. However, VVB interviewed 45 (11 each stratum 7W, 9W, 12W and 14W) samples from the sampling survey done by project participants in line with the sampling standard, version 09 /B04/.

The information provided in the sampling survey data /07/, has been cross checked during the on-site interviews conducted. As a part of acceptance sampling, the verification team could confirm the sampling survey data with no discrepant records. Thus, PP's set of records has been accepted in line with § 33 of the sampling standard, version 09 /B04/.

The verification team carried out on-site interviews with representatives of PP in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for the VCS.

## 2.5 Resolution of Findings

Describe the process for the resolution of any findings (corrective actions and clarifications or other findings) raised by the verification team during the verification and, where applicable, outstanding forward action requests from the validation or previous verifications.

State the total number of corrective action requests, clarification requests and forward action requests and other findings raised during the verification.

Provide a summary of each finding, including the issues raised, the response(s) provided by the project proponent, and the final conclusions and any resulting changes to project documents. Unless this fits on one page, put all findings in an appendix.

CCIPL, during this verification, identified issues related to the monitoring, implementation or operation of the VCS project that could impair the capacity of the proposed VCS project to achieve project emission reductions or influence the reporting of emission reductions. CCIPL has identified, discussed these issues within the Verification report in Appendix B.

•Clarification requests (CLs): Project reporting lacks transparency and further information is needed to determine if a material discrepancy is present.

•Corrective action requests (CARs): The VVB has identified a material discrepancy or non-conformance that the project proponent must address.

The verification team identified 02 CARs and 05 CLs. All CAR and CLs raised by Carbon Check during this verification have been successfully resolved. If this was not completed, the ERs cannot be certified and recommended for issuance to the VCS Registry.

### 2.5.1 Forward Action Requests

Forward Action Request (FAR) is to be raised when the monitoring and reporting require attention and/or adjustment for the next verification period. FARs VVBs not relate to VCS requirements for issuance of ERs achieved during subject monitoring.

CCIPL has not raised any FAR during this verification.

## 2.6 Eligibility for Validation Activities

The project activity falls under sectoral scope 03 and the CCIPL is accredited for validation verification of project activities under this scope.

# 3 VALIDATION FINDINGS

## 3.1 Participation under Other GHG Programs

The “SHINE – Distribution of LED Lightbulbs in India-2” is registered as a Small-Scale Component Project Activity under the Clean Development Mechanism (CDM) and under the Programme of Activities “SHINE – Distribution of LED Lightbulbs in India” (Ref. PoA 10484). Evidence has been provided to the VVB that the emissions reductions arising from this program are not double counted under the CDM and VCS, considering the issuance under VCS for the current monitoring period.

The verification team has confirmed that the project has not been submitted for validation/certification under any other GHG or environmentally related program or mechanism, so it is not eligible to create another form of GHG-related environmental credit other than CERs and VCUs.

## 3.2 Methodology Deviations

There is no methodology deviation identified during the current monitoring period.

## 3.3 Project Description Deviations

There is no project description deviation identified during the current monitoring period.

## 3.4 Grouped Project

Describe the steps taken to validate the inclusion of new project activity instances into the (grouped) project, including the following:
The grouped project (the project) is the distribution of energy efficient LEDs to grid connected households located in Assam and Tripura. A total of 1,411,863 LEDs were disseminated by the end of this monitoring period. As described in the registered project document/15/, for each new instance (total number of LEDs which result in not more than 60 GWh of annual energy savings) the eligibility criteria below are confirms the new project activity instances in the assessment below:

The number of new project activity instances added to the project in this verification period: Under this grouped project PP has considered total six project activity instances as per section 3.1 of the MR /01/ which is deemed acceptable as per the VCS Program Definitions and VCS Standard/B01/.

- Quality and completeness of evidence, data and documentation relating to the new project activity instances:

The assessment team has reviewed the evidence collected by the PP for each of the PAI included in this verification and confirmed the following;

- Implementation and operational status of the PAI
- Monitoring and data collection
- Flow of information; generating, aggregating and reporting of the monitoring parameters
- Conformance of the new project activity instances with the eligibility criteria set out in the project description:

The verification team assessed the appropriateness of new project activity instances (added to the grouped project) against the requirements of the following key elements defined in section 3.2.11 of the Validation and Verification Manual (version 3.2):

Table 1 :- Eligibility Criteria for new project activity instances

| Sl. No. | Eligibility criteria for the inclusion of new project activity instances | Supporting Evidences | Assessment by the verification team |
|---|---|---|---|
| 1. | Methodology<br><br>Conditions:<br><br>Meet the applicability conditions set out in the methodology applied to the project: The project activity instance shall use AMS-II.C-Demand-side energy efficiency activities for specific technologies, Version 15.0. and shall meet all the applicability conditions. | Details of how each project activity instance meets the requirements of the methodology can be confirmed from the registered CPA-DD. | The verification team reviewed the registered CDM CPA-DD/B05/ and the registered PD/15/ and all the applicability conditions set out in the applied methodology /B02/ is deemed appropriate to the validation team.<br><br>Thus, the eligibility criteria has been met for the new project activity instances under this grouped project. |
| 2. | Technology<br><br>Conditions: -<br><br>Use the technologies or measures specified in the project description: New LEDs will replace existing incandescent lamp (ICL). The lumen output of the project LEDs would be between 90%- | Technical Specifications of the LEDs provided by manufacturer have been provided to the VVB. | The Verification team reviewed the manufacturer specification/04/ of the LEDs provided by PP and onsite interviews analyze that the project LEDs will replace existing ICL under this grouped project. Moreover, the LEDs technical specification is also provided in the registered CDM CPA-DD /B05/ and registered PD /15/ and in section 1.11 of the PD/1-c/.<br><br>Thus, the eligibility criteria has been met for the new project activity instances under this grouped project. |

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| | 150% of the lumen output of the baseline incandescent lamps. | | |
| 3. | Baseline Scenario Conditions: -<br>New project activity instances are subject to the baseline scenario determined in the project description for the specified project activity and geographic area: The baseline is "continued use of existing luminaries in the households". This also conforms to paragraph 51 of applied methodology according to which, "assumed baseline scenario is that lighting by the project lamps would have been provided by the lamps collected and replaced by the project activity". | Baseline Scenario can be confirmed from the registered CPA-DD[1]. | The verification team reviewed the registered CDM CPA-DD/B05/ and registered PD/15/ baseline scenario is appropriately described in the section B.3 and inline with the VCS requirements.<br><br>Thus, the eligibility criteria has been met for the new project activity instances under this grouped project. |
| 4. | Additionality Conditions: - | Project Activity Instance NPV calculation spreadsheet. | PP has calculated NPV of the project activity instances.Verification team checked all the input values (cash inflow |

[1]https://cdm.unfccc.int/ProgrammeOfActivities/cpa_db/L4XT6C0ND7KEVO2ZFW9AJIBQR5HSGM/view

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| | Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area:<br>Net Present Value (NPV) is the financial indicator against which the Project activity instances will demonstrate investment barrier. | | and cash outflow) opted for NPV calculation with their respective evidences/08/ and found it appropriate.<br><br>Key cash inflow assumptions have been assessed as follows:<br>1) One time cash collected from households: Verification team has checked the opted value ₹10/ICL and found conformance with the referred section 7.3 d) of service agreement for project management dated 13/02/2018.<br><br>Key cash out flow assumptions are as follows:<br><br>1) Procurement cost of LED: Average cost of LED ₹91.845 email dated 13/03/2019 from LED manufacturer, HPL Electric & Power Limited.<br><br>2)Disposal of ICLs: Verification team has checked the calculation for disposal of ICLs and found appropriate, conformance with section 10.1 of referred ICL collection and disposal agreement/17/.<br><br>3)Replacement cost for fused LEDs: Verification team has checked the calculation and found that CME has calculated this value based on Lamp failure rate. Further, The considered LED lamp failure rate of 1% has been found conformance with referred Ujala dashboard (Govt. of India) and above mentioned Procurement cost of LED. The verification team confirms that the assumption, calculation found reliable and appropriate.<br><br>4) Distribution cost of LED: CME has opted distribution cost of LED as ₹21.24/LED. Verification team checked the calculation and found that considered distribution cost of LED is in |

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| | | | conformance with the referred source i.e. from email dated 13/03/2019 from LED manufacturer, HPL Electric & Power Limited.<br><br>Assessment of discount rate considered:<br><br>Discount rate: Verification team has verified the opted 10 year G-Sec Par Yeild discount rate of 6.70% from Reserve Bank of India weblink (https://m.rbi.org.in/scripts/WSSView.aspx?Id=23212) and found appropriate.<br><br>The financial calculations have been verified and found appropriate. It is clearly established that projects has negative NPV without revenues.<br><br>Furthermore, the verification team has checked that even if the cash outflows corresponding to Distribution cost of LEDs; ICL Transport, Scrap Handling, and Disposal; LED Collection, Transportation, and Disposal; are excluded still the NPV remains negative.<br><br>Based on the above assessment, verification team concludes criteria has been met for the new project activity instances and Shine CPA 2 PAI 1 under this grouped project. |
| 5. | Defined geographic area<br><br>Conditions: -<br>Occur within one of the designated geographic areas specified in the project description: North-East Indian states of Arunachal Pradesh, Assam, Manipur, | Instances under this grouped project were implemented in Assam and Tripura only. No further distribution has been planned by the Project Proponent under this grouped project.<br>Evidence: Project Activity Instance Database containing address, including Geographical Coordinates of each consumer to which LEDs were distributed. | The verification team through review of the registered CDM CPA-DD /B04/ ,section 1.11 of the registered PD/15/, onsite visit interviews and a self declaration letter from the PP /19//20/ for this project activity, the verification team is able to confirm that the new project activity instances are located in Assam and Tripura.<br><br>Thus, based on the above assessment, verification team concludes criteria has |

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| | Meghalaya, Mizoram, Nagaland and Tripura | | been met for the new project activity instances under this grouped project. |
| 6. | Ownership Conditions: -<br>Have evidence of project ownership, in respect of each project activity instance, held by the project proponent from the respective start date of each project activity instance: A default Beneficiary Agreement for end users including the provision that emission reductions generated by the project activity are owned by the Project Proponent will be provided for project activity instance. | Copy of Consent letter/record of consent given from End User to Project Proponent regarding emission reduction claims. | The verification team through review of the registered CDM CPA-DD /B04/, registered VCS PD /01-c/, End user declaration/undertaking template/14/ (relinquishment of VERs from end user to PP) upon registration of end-user in the database; validation team is able to confirm that all end user under the new project instance has signed the undertaking at the time of its registration process mentioning clearly that right to VER is secured by the Project Proponent. .<br><br>Thus, based on the above assessment, verification team concludes criteria has been met for the new project activity instances under this grouped project. |
| 7. | Start Date Conditions: -<br>The project activity instance start date will be same as or later date than the grouped project start date. | Copies of signed consent letter/record of consent given by End user to PP for first LED distributed under the grouped project. . . | The grouped project CPA titled, "SHINE – Distribution of LED Lightbulbs in India-2", has started implementation on 19/03/2021 and invoice cum consent deed/03/ for end user dated 19/03/2021 has been submitted by PP. PP has considered the start date as the date on which the first energy efficient LED has been distributed under this grouped project. The verification team reviewed the provided supportive |

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| | | | documents and confirms that the start date is inline with the VCS requirements.<br><br>Thus, based on the above assessment, verification team concludes criteria has been met for the new project activity instances under this grouped project. |
| 8. | Capacity limit<br><br>Conditions: -<br>Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit:<br>1. The aggregate energy savings by a single project activity instance shall not exceed the equivalent of 60 GWh per year as mentioned in applicable methodology AMS II-C: Demand-side energy efficiency activities for specific technologies, Version 15.0<br>2. Each project activity instance that exceeds one percent of the capacity limit (i.e., | The grouped project consists of six project activity instances based on the electricity division in which LED distribution has been carried out by Project Proponent. Energy Savings from each instance have been calculated and provided in Project Activity Instance ER Spreadsheet.<br>1. No project activity instance exceeds the equivalent of 60 GWh per year. Same can be verified by the Project Activity Instance ER Spreadsheet being submitted to the VVB.<br>2. Six Project Activity Instances that exceed one percent of capacity limit have been identified by the Project Proponent. Same can be verified by the Project Activity Instance ER Spreadsheet being submitted to the VVB.<br>3. The grouped project has been divided into six instances, based on the electricity division and subdivision in which LED distribution has been carried out by Project Proponent. No Project Activity Instance has same electricity subdivisions. Hence, no two Project Activity Instance lies within one kilometer of each other. Therefore, project activity instances under this grouped project are not required to be assigned to clusters. Same can be verified from respective project | The verification team reviewed the ER/02/ calculation sheet and six Project Activity Instances that exceed one percent of capacity limit (0.6 GWh) have been identified by the Project Proponent.<br><br>Further, the annual energy savings for each of the 6 project activity instances do not exceed the limit of 60 GWh per year.<br><br>The verification team reviewed the emission reduction spread sheet /02/and conducted onsite interviews. No two Project Activity Instance lies within one kilometer of each other. Therefore, project activity instances under this grouped project are not required to be assigned to clusters. Therefore, it is not required to divide any project activity instance into clusters.<br><br>This criterion is deemed appropriate and it can be verified from each project activity instance as per the database included in the grouped project. |

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| | 0.6 GWh) shall be identified.<br>3. Such instances shall be divided into clusters, whereby each cluster is comprised of any system of instances such that each instance is within one kilometer of at least one other instance in the cluster. Instances that are not within one kilometer of any other instance shall not be assigned to clusters. | activity instance database being provided to the VVB. | |
| 9. | Double counting<br>The LED distributed in any project activity instance shall be uniquely identifiable based on the distribution records. Each LED distributed will have corresponding end user details (i.e., name, geographical coordinates, address, Unique Identification number etc.). | Project Activity Instance Database containing combination of end user details, consumer number and address including Geographical Coordinates of each consumer to which LEDs are distributed. | Verification team during the site visit and document review and confirm that each end users has it unique DISCOM number/consumer number. Verification team could verify the unique identification number through the electricity bill generated by the DISCOM.<br><br>Hence, this criterion is deemed appropriate and it can be verified from each project activity instance as per the database included in the grouped project. |

# 4 BASED ON THE ABOVE ASSESSMENT THE VERIFICATION TEAM CONFIRMS THAT INCLUSION OF PROJECT ACTIVITY INSTANCES IN THE GROUPED PROJECT IS VALID.VERIFICATION FINDINGS

## 4.1 Project Implementation Status

The grouped project, "SHINE- Distribution of LED Lightbulbs in India -2" is submitted to VERRA as a VCS project on (VCS Project ID 2608) applying the methodology *AMS-II.C*- Demand-side energy efficiency activities for specific technologies, Version 15.0 /B02/

This is the first monitoring report for the project "SHINE- Distribution of LED Lightbulbs in India -2", which is a grouped project and employs the methodology; AMS-II.C- Demand-side energy efficiency activities for specific technologies, Version 15.0 /B02/. The grouped project involves distribution of Light Emitting Diodes (LEDs) for domestic lighting in North-East Indian states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. Thus, under this grouped project, 60W ICL have been replaced with 7W/9W LED and 100W ICL with 12W/14W LED as the lumen output is within the specified limit. Each household has received maximum six LEDs under this grouped project. Total 1,411,863 LEDs have been distributed to 246,104 grid connected households in the state of Assam and Tripura till the end of first monitoring period under VCS. No further distribution of project LEDs has been planned under this grouped project. The grouped project has been divided into six project activity instances based on the electricity division and subdivision in which LED distribution has been carried out by Project Proponent. The start date for the grouped project is 12-August-2018 /03/ which is the date when the first energy efficient LED has been distributed.

The verification team confirms that there is no change from the registered VCS PD of the physical features which may impact the emission reductions of the project activity. This has been confirmed based on the review of sales records /09/, conducting interviews with representatives of PP as well as by carrying out onsite visit interviews with end users. Thus, the verification team concludes all the physical features of the CDM grouped project in the registered VCS PD /15/ are in place.

The verification team confirms that during the current monitoring period (01-January-2021 to 31-May-2022) the grouped project has distributed 1,411,863 LEDs. This was confirmed based on the review of sales records /09/ and further based on interviews with representatives of PP through onsite visit interviews.

During the onsite visit interviews verification, QA/QC procedures were identified which demonstrate that: operational and management system of the grouped project is in place; data were centralized; monitoring data were crosscheck with the sales records stored and confirmation that all operational staff were trained before taking up positions. The verification team thus confirmed that the monitoring of the project activity has been implemented in accordance with the monitoring plan in the registered VCS PD.

The registered VCS PD clearly describes the monitoring and responsibility of monitoring is done by PP. During the onsite visit interviews, monitoring, data collection and reporting procedures were confirmed with the relevant staff and through document review of samples of all relevant records.

The verification team confirms that the monitoring plan is in accordance with VCS approved methodologies AMS-II.C, Version 15.0 /B02/. All data are collected and archived in accordance with the applied methodologies and included in the monitoring plan. This was confirmed based on the onsite visit interviews with representatives of PP and upon further review of samples of all relevant records.

All the ex-ante parameters which are used in the calculation of emission reductions are consistent with the VCS PD. It is confirmed that ex-ante parameters mentioned in section 4.1 of the MR /1.2/ are in line with the parameters mentioned in section 5.1 of the VCS PD. All the ex-post parameters have been monitored as per the monitoring plan and presented in section 4.2 of the MR /01.2/.

## 4.2 Safeguards

### 4.2.1 No Net Harm

Not applicable as the project VVBs not pose any potential negative environmental and socio-economic impact.

### 4.2.2 Local Stakeholder Consultation

The local stakeholder consultation meeting was held on 7-March-2018 at PoA level, prior to the registration of the PoA and has been described in the section of 2.2 the MR /01-b/. The local stakeholders for the project was carried out grouped project level which was validated by the validation team at the time of validation of the VCS PD /15/.

The local implementation partners have the responsibility to take grievances regarding the project activity and same will be conveyed to PP during operation of project activity. Thus, ongoing communication of stakeholders is followed through grievance mechanism. The Project Proponent has reported its feedback and grievance redressal procedure in Section 2.2 of the MR /01-b/, and document “Log book for the grievance records” and the LED lamp replacement register /18/. In the opinion of assessment team, based on site visit interviews and observations, the grievance redressal procedure will address issues that may arise during project planning and implementation.

The grievance redressal process has been designed where beneficiaries and stakeholders have PP contact information and the understanding that they should contact the organization with any problems, questions, or grievances. As per registered VCS PD /15/ and further confirmed during onsite visit

interviews, PP conducts regular surveillance to observe that project LEDs are functioning properly and to get feedback from stakeholders on LED usage and its benefits. Also, LED users can contact Project Proponent for any concerns /comments on the project or project LEDs through consumer care number. If within the warranty period, the bulb becomes non-functional then the project implementor will replace it free of cost at LED Replacement Centres. As on date, PP has replaced 1279 LEDs (9W: 152 LED, 12W: 804 LED, 7W: 323 LED) as part of warranty scheme under this grouped project. In The opinion of VVB, this would easy the process of replacement without any hesitation and deemed appropriate to the VVB. The On going local stakeholder communication mechanism mentioned in the section 2.2 of the MR /01-b/.

During the on-site interviews and based on document review /01/, /18/, it can be confirmed that grievance addressal procedure has been designed and is implemented according to section 2.2 of the MR /01-b/ and that it is effective in its aim. The verification team confirms on the procedure and method for engagement, method for documenting the outcomes of local stakeholders' consultation and account of all inputs received.

The verification team confirms that the project proponent has taken due account of all input/ feedback received during the monitoring process (positive or negative) have been compiled in the survey results spreadsheet/07/, this has been checked by the verification team during the on site visit interviews. Hence the verification team deemed the local stakeholders ongoing communication as appropriate.

## 4.3 AFOLU-Specific Safeguards

This is a non-AFOLU project and hence this section is not applicable.

## 4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The equations and choices provided in the methodology and all other methodological tools are correctly quoted in the MR /01--b/. The emission reductions of the project instances of the grouped project and project activity instance are calculated using the formulae mentioned in the applied methodologies; AMS-II.C, Version 15.0/B02/. The verification team has reviewed the emission reduction spread sheets (ER sheets)/02-b/ and checked all the formulae and found they are correct and are in accordance with the monitoring plan of the PD and the applied monitoring methodology.

**Baseline Emissions**

$$BE_y = E_{BL,y} \times EF_{CO2,ELEC,y} + Q_{ref,BL} \times GWP_{ref,BL}$$

As the project entails replacement of LED in place of ICLs hence no refrigerant is involved. The above equation is then modified as:

$$BE_y = E_{BL,y} \times EF_{CO2,ELEC,y}$$

$BE_y$ = Baseline emissions in year y ($tCO_2e$)

$E_{BL,y}$ = Energy consumption for the baseline (ICLs) in year y (kWh)

$EF_{CO2,ELEC,Y}$ = Electricity emissions factor. If electricity displaced is grid, the emission factor in year y shall be calculated in accordance with the provisions in AMS-I.D ($tCO_2/MWh$). If electricity displaced is captive electricity, the emission factor in year y shall be calculated in accordance with the "Tool to calculate baseline, project and/or leakage emission from electricity consumption"

Energy consumption for baseline in year y is calculated as:

$$E_{BL,y} = \sum_i (n_i \times \rho_i \times o_i/(1 - l_y)$$

Where,

$n_i$ = Number of pieces of equipment of the group of 'i' baseline equipment (ICLs) replaced.

$\rho_i$ = Electrical power demand (kW) of the group of 'i' baseline equipment (e.g. 60W or 100W incandescent lamps).
In the case of more than one type of ICLs are replaced, electrical power demand is the weighted average of the rated power (kW) of group i baseline equipment (ICLs).

$o_i$ = Average annual operating hours of the group of 'i' baseline equipment (ICLs).
The operating hours of the baseline equipment in year y can be determined using surveys by continuous measurement of usage hours of baseline equipment for a minimum of 90 days. For a large population of baseline equipment: (a) Use a representative sample (sampling determined by a minimum 90% confidence interval and 10% maximum error margin); (b) Apply correction for seasonal variation, if any; and (c) Ensure that sampling is statistically robust and relevant, i.e. the selection of the equipment to be analysed for operating hours has a random distribution and is representative of target population (size, location).

$l_y$ = Average annual technical grid losses (transmission and distribution) during year y for the grid serving the locations where the devices are installed, expressed as a fraction. This value shall not include non-technical losses such as commercial losses (e.g. theft). The average annual technical grid losses will be determined using recent, accurate and reliable data available for the host country. This value can be determined from recent data published either by a national utility or an official governmental body. The reliability of the data used (e.g. appropriateness, accuracy/uncertainty, especially exclusion of non-technical grid losses) will be established and documented by the project participant. A default value of 0.1 shall be used for average annual technical grid losses, if no recent data are available or the data cannot be regarded accurate and reliable

0.95 = Net to gross adjustment factor

**For 100 W ICLs replacing 12 W**

$E_{BL,y}$ = 0.95 x (0.961 x 0.1 x 2,347) / (1- 0.10)

= 238.07 kWh

$BE_y$ = 238.07 x 0.92/1000

= 0.219 tCO2e/ICL/year

**For 100 W ICLs replacing 14 W**

$E_{BL,y}$ = 0.95 x (1.00 x 0.1 x 2,347) / (1- 0.10)

= 247.73 kWh

$BE_y$ = 247.73 x 0.92/1000

= 0.228 tCO2e/ICL/year

**For 60 W ICL replacing 7 W**

$E_{BL,y}$ = 0.95 x (0.959 x 0.06 x 2,347) / (1- 0.10)

= 142.55 kWh

$BE_y$ = 142.55 x 0.92/1000

= 0.131 tCO2e/ICL/year

**For 60 W ICL replacing 9 W**

$E_{BL,y}$ = 0.95 x (1.00 x 0.06 x 2,347) / (1- 0.10)

= 148.64 kWh

$BE_y$ = 148.64 x 0.92/1000

= 0.137 tCO2e/ICL/year

**Project Emissions**

Project emissions on account of electricity used by the project equipment shall be calculated according to following equations:

$$PE_y = E_{PE,y} \times EF_{CO2,ELEC,y} + PE_{ref,y}$$

Where,

| | | |
|---|---|---|
| $PE_y$ | = | Project emissions in year y (tCO2e) |
| $EP_{PJ,y}$ | = | Energy consumption in project activity in year y. This shall be determined ex post based on monitored values |
| $EF_{CO2,y}$ | = | Emission factor for electricity or thermal baseline energy. The emissions associated with grid electricity consumption should be calculated in accordance with the procedures of AMS-I.D. For fossil fuel displaced reliable local or national data for the emission factor shall be used; IPCC default values should be used only when country or project-specific data are not available or difficult to obtain |
| $PE_{ref,y}$ | = | Project emissions from physical leakage of refrigerant from the project equipment in year y ($tCO_2e/y$) |

As the project entails replacement of LED in place of ICLs hence no refrigerant is involved. The above equation is then modified as:

$$E_{PE,y} = \sum_i (n_i \times \rho_i \times o_i / (1 - l_y)$$

Where,

| | | |
|---|---|---|
| $n_i$ | = | Number of group 'i' project devices operating during time interval t in year y. |

$\rho_i$ = Electrical power demand (kW) of the group 'i' project devices measured during the time interval t in year y.

$o_i$ = Operating hours of group of 'i' project devices in the time interval t in year y

0.95 = Net to gross adjustment factor

For calculating the project emissions for the current monitoring period, project emission per LED has been calculated for each type (i.e., each for 7W, 9W, 12W and 14W) of project lamp and then apportioned according to the working days for each household as per the database in the ER calculation spreadsheet.

**For 14 W LEDs**

= 0.95 x (1.00 x 0.014x 2,347) / (1- 0.10)

= 34.68 kWh

= 34.68*0.92/1000

=0.032 tCO2e/LED/year

**For 12 W LEDs**

= 0.95 x (0.961 x 0.012 x 2,347) / (1- 0.10)

= 28.57 kWh

= 28.57*0.92/1000

=0.026 tCO2e/LED/year

**For 9 W LEDs**

= 0.95 x (1.00 x 0.009 x 2,347) / (1- 0.10)

= 22.30 kWh

= 22.30*0.92/1000

= 0.021 tCO2e/LED/year

**For 7 W LEDs**

= 0.95 x (0.959 x 0.007 x 2,347) / (1- 0.10)

= 16.63kWh

= 16.63*0.92/1000

= 0.015 tCO2e/LED/year

**Leakage Emissions**

According to the applied methodology, leakage emissions have to be considered if the energy efficiency technology involves equipment's transferred from another activity. In the proposed project activity, LEDs that will be distributed to the consumers are not transferred from another activity; hence leakage emissions are not applicable.

Table 2:- Net GHG emission reductions achieved at project activity instance level during this monitoring period is stated below;

| | Project Activity Instance Number | Baseline emissions or removals ($tCO_2e$) | Project emissions or removals ($tCO_2e$) | Leakage emissions ($tCO_2e$) | Net GHG emission reductions or removals ($tCO_2e$) |
|---|---|---|---|---|---|
| | 1 | 25,596.37 | 3,126.33 | 0 | 22,470.04 |
| | 2 | 42,425.26 | 27,657.41 | 0 | 14,767.85 |
| | 3 | 46,795.79 | 5,559.01 | 0 | 41,236.78 |
| | 4 | 47,217.65 | 5,850.71 | 0 | 41,366.94 |
| | 5 | 50,623.29 | 5,063.91 | 0 | 45,559.38 |
| | 6 | 32,308.88 | 4,087.93 | 0 | 28,220.95 |
| | Total (Rounddown) | 244,967 | 51,345 | 0 | 193,621 |
| | 1 | 12,108.81 | 1,473.59 | 0 | 10,635.21 |
| | 2 | 17,572.75 | 11,450.42 | 0 | 6,122.33 |
| | 3 | 21,958.50 | 2,608.70 | 0 | 19,349.80 |
| | 4 | 19,477.27 | 2,413.14 | 0 | 17,064.13 |
| | 5 | 22,595.57 | 2,245.43 | 0 | 20,350.14 |

| | | | | | |
|---|---|---|---|---|---|
| | 6 | 13,326.08 | 1,685.74 | 0 | 11,640.34 |
| | Total (Rounddown) | 107,038 | 21,877 | 0 | 85,161 |

Emission reductions have been calculated in accordance with the applied methodology AMS II C version 15 /B01/, and VCS PD /15/. The PP has used monitored data and ex-ante fixed data including default values as mandated/permitted by the applied methodology. The values used for calculation of GHG emission reductions have been thoroughly checked by the verification team and was found appropriate and correct.

Table 3:- Parameters Determined ex-ante

The following parameters are determined ex-ante and mentioned in section 5.1 of the VCS PD/15/:

| Parameter | Unit | Value | Assessment |
|---|---|---|---|
| $EF_{CO2, ELEC,y}$ | $tCO_2/MWh$ | 0.92 | The Project Proponent has applied the latest grid emission factor database available on the CEA website and fixed the value ex-ante. |
| $Li_{12W}$ | Hours | 25,000 | The value has been determined from independent life-tests of the LEDs as per national or any other admissible test. The value has been fixed ex-ante. |
| $Li_{7W}$ | Hours | 25,000 | The value has been determined from independent life-test reports of the LEDs as per national standard IS 16012 (Part 2): 2017. The value has been fixed ex-ante. |
| $Li_{9W}$ | Hours | 25,000 | The value has been determined from independent life-test reports of the LEDs as per national standard IS 16012 (Part 2): 2017. The value has been fixed ex-ante. |

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| $Li_{14W}$ | Hours | 25,000 | The value has been determined from independent life-test reports of the LEDs as per national standard IS 16012 (Part 2): 2017. The value has been fixed ex-ante. |

Data mentioned in the above table is checked through below steps:

- Applied methodology
- Distribution records
- Third party reports
- National/ international Guidelines

Moreover, under section 4.3 of the MR/01-b/, it clearly states that the monitoring survey was conducted through questionnaires along with physical observations by a competent third party hired by PP.The same has been observed during the on site visit interviews and deemed low risk of manual transposition errors between data records.

The spread sheet submitted by the PP clearly and transparently mentions values of the data parameters used for calculation of emission reductions. The input values have been verified from the reliable and authentic sources including monitoring records (distribution records) /07/, MR /01-b/, and applied methodology /B01/. The emission reductions calculated were compared with the emission reduction spread sheet /02/ and found to be correct. No significant reporting risks have been identified for the data reported.

The details of monitoring parameters used for calculation of emission reductions are provided below:

**Table 3:- Parameters monitored ex-post**

| Monitoring Parameter Requirement | Assessment/ Observation by the VVB |
|---|---|
| Data / Parameter:<br>(as in monitoring plan of VCS PD): | Number of pieces of 60 W and 100 W baseline Incandescent Lamps replaced. ( $n_{i\ baseline\ (60W)\ \&\ (100W)}$) |
| Measuring frequency/Time Interval: | Once at the time of project installation |
| Reporting frequency: | Once at the time of project installation |
| Reported value: | 60 W- 691,079<br>100 W- 720,784 |

| | |
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| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No) | Yes |
| Details of monitoring equipment: | NA |
| Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD VVBs not specify the accuracy of the monitoring equipment, VVBs the monitoring equipment represent good monitoring practise? | NA |
| Calibration frequency /interval:<br><br>Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification | NA |
| Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD VVBs not specify the frequency of calibration, VVBs the selected frequency represent good monitoring practise? | NA. QA/QC procedures stated in MR comply with registered VCS PD /15/ |
| Company performing the calibration(internal or external calibration): | NA |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No): | NA |
| Is (are) calibration(s) valid for the whole reporting period? | NA |
| If applicable, has the reported data been cross-checked with other available data? | Yes, the reported data in MR /01-b/ has been compared with monitoring survey records /09/ and the ER sheet /02-b/. The total number of replaced LEDs has been cross checked with the database /09/ and registration certificate /10/ as provided by the PP.<br><br>VVB confirms here that on-site assessment of Monitoring parameter $n_{i\ \text{baseline (60W) \& (100W)}}$ was conducted based on following two methods:<br><br>➢ Confirmation with the household/end user whether or not the PP has performed |

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|---|---|
| | monitoring/measurement campaign, survey on LEDs operation (for the parameter $n_{i\ baseline\ (60W)\ \&\ (100W)}$).<br>➢ Assessment of Competence of personnel involved in conducting/12/ |
| How were the values in the monitoring report verified? | NA |
| VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place. |
| In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved? | NA |

| **Monitoring Parameter Requirement** | **Assessment/ Observation by the VVB** |
|---|---|
| Data / Parameter:<br>(as in monitoring plan of VCS PD): | Number of pieces of 60 W and 100 W baseline Incandescent Lamps destroyed ($n_{i\ baseline\ scrapped\ (60\ W\ \&\ 100\ W)}$). |
| Measuring frequency/Time Interval: | Once |
| Reporting frequency: | Once |
| Reported value: | 60 W- 691,079<br>100 W- 720,784 |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No) | Yes |
| Details of monitoring equipment: | NA |
| Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD VVBs | NA |

| | |
|---|---|
| not specify the accuracy of the monitoring equipment, VVBs the monitoring equipment represent good monitoring practise? | |
| Calibration frequency /interval:<br><br>Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification | NA |
| Is the calibration interval in line with the monitoring plan of VCS PD? If the VCS PD VVBs not specify the frequency of calibration, VVBs the selected frequency represent good monitoring practise? | NA. QA/QC procedures stated in MR comply with VCS PD /15/ |
| Company performing the calibration (internal or external calibration): | NA |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No): | NA |
| Is (are) calibration(s) valid for the whole reporting period? | NA |
| If applicable, has the reported data been cross-checked with other available data? | Yes, the reported data in MR has been compared with the database /09 / and destruction certificate/21/. |
| How were the values in the monitoring report verified? | NA |
| VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place. |
| In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved? | NA |

| Monitoring Parameter Requirement | Assessment/ Observation by the VVB |
|---|---|
| Data / Parameter:<br>(as in monitoring plan of VCS PD): | Number of pieces of 7W, 9W, 12 W and 14 W project lamps distributed ( $n_i$ project $_{(7\ W,\ 9W,\ 12\ W,\ 14\ W)}$) |
| Measuring frequency/Time Interval: | Once at the time of project installation |
| Reporting frequency: | Once at the time of project installation |
| Reported value: | 7 W- 436,333<br>9 W- 254,746<br>12 W- 716,136<br>14 W- 4,648 |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No) | Yes |
| Details of monitoring equipment: | NA |
| Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD VVBs not specify the accuracy of the monitoring equipment, VVBs the monitoring equipment represent good monitoring practise? | NA |
| Calibration frequency /interval:<br>Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification | NA |
| Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD VVBs not specify the frequency of calibration, VVBs the selected frequency represent good monitoring practise? | NA |
| Company performing the calibration (internal or external calibration): | NA |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No): | NA |

| | |
|---|---|
| Is (are) calibration(s) valid for the whole reporting period? | NA |
| If applicable, has the reported data been cross-checked with other available data? | Yes, the reported data in MR has been compared with the ER sheet /02-b/. |
| How were the values in the monitoring report verified? | NA |
| VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, the data management ensures correct transfer of data from monitoring survey /09/ and reporting of emission reductions and all necessary QA/QC processes are in place. |
| In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved? | NA |

| **Monitoring Parameter Requirement** | **Assessment/ Observation by the VVB** |
|---|---|
| Data / Parameter:<br>(as in monitoring plan of VCS PD): | Rated power of 60 W and 100 W baseline lamps replaced ( $\rho_{i\ (baseline\ 60\ W,\ 100\ W)}$) |
| Measuring frequency/Time Interval: | Once at the time of project installation |
| Reporting frequency: | Once at the time of project installation |
| Reported value: | 60 W and 100 W |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No) | Yes |
| Details of monitoring equipment: | NA |
| Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD VVBs not specify the accuracy of the monitoring | NA |

| | |
|---|---|
| equipment, VVBs the monitoring equipment represent good monitoring practise? | |
| Calibration frequency /interval:<br><br>Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification | NA |
| Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD VVBs not specify the frequency of calibration, VVBs the selected frequency represent good monitoring practise? | NA. |
| Company performing the calibration (internal or external calibration): | NA |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No): | NA |
| Is (are) calibration(s) valid for the whole reporting period? | NA |
| If applicable, has the reported data been cross-checked with other available data? | Yes, the reported data in MR has been compared with the ER sheet /02-b/. |
| How were the values in the monitoring report verified? | NA |
| VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, the data management ensures correct transfer of data from monitoring survey /09/ and reporting of emission reductions and all necessary QA/QC processes are in place. |
| In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved? | NA |

| Monitoring Parameter Requirement | Assessment/ Observation by the VVB |
|---|---|
| Data / Parameter:<br>(as in monitoring plan of VCS PD): | Rated power of 7W, 9W, 12W, 14 W project LEDs (Watts) ( $\rho_{i\ (project\ 7W,\ 9W,\ 12W,\ 14\ W)}$) |
| Measuring frequency/Time Interval: | Once at the time of project installation |
| Reporting frequency: | Once at the time of project installation |
| Reported value: | 7W, 9W, 12W and 14W |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No) | Yes |
| Details of monitoring equipment: | NA |
| Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD VVBs not specify the accuracy of the monitoring equipment, VVBs the monitoring equipment represent good monitoring practise? | NA |
| Calibration frequency /interval:<br>Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification | NA |
| Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD VVBs not specify the frequency of calibration, VVBs the selected frequency represent good monitoring practise? | NA. |
| Company performing the calibration (internal or external calibration): | NA |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No): | NA |
| Is (are) calibration(s) valid for the whole reporting period? | NA |
| If applicable, has the reported data been cross-checked with other available data? | Yes, the reported data in MR has been compared with the ER sheet /02-b/. |

| | |
|---|---|
| How were the values in the monitoring report verified? | NA |
| VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, the data management ensures correct transfer of data from monitoring survey /09/ and reporting of emission reductions and all necessary QA/QC processes are in place. |
| In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved? | NA |

| **Monitoring Parameter Requirement** | **Assessment/ Observation by the VVB** |
|---|---|
| Data / Parameter:<br><br>(as in monitoring plan of VCS PD): | Average annual technical grid losses ( Ly ) |
| Measuring frequency/Time Interval: | Once at the time of project installation |
| Reporting frequency: | Once at the time of project installation |
| Reported value: | 10% |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No) | Yes |
| Details of monitoring equipment: | NA |
| Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD VVBs not specify the accuracy of the monitoring equipment, VVBs the monitoring equipment represent good monitoring practise? | NA |
| Calibration frequency /interval: | NA |

| | |
|---|---|
| Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification | |
| Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD VVBs not specify the frequency of calibration, VVBs the selected frequency represent good monitoring practise? | NA. |
| Company performing the calibration (internal or external calibration): | NA |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No): | NA |
| Is (are) calibration(s) valid for the whole reporting period? | NA |
| If applicable, has the reported data been cross-checked with other available data? | Yes, the value is a default value from methodology AMS- II.C. – version 15. |
| How were the values in the monitoring report verified? | NA |
| VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, the data management ensures correct transfer of data from monitoring survey /09/ and reporting of emission reductions and all necessary QA/QC processes are in place. |
| In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved? | NA |

| **Monitoring Parameter Requirement** | **Assessment/ Observation by the VVB** |
|---|---|

| | |
|---|---|
| Data / Parameter:<br>(as in monitoring plan of VCS PD): | Average annual operating hours of type 'i' project/baseline lamp ( oi project (7W)/(9W)/(12W)/(14W) /baseline (60W)/(100W)) |
| Measuring frequency/Time Interval: | once, prior to or concurrent with the first ex-post monitoring |
| Reporting frequency: | once, prior to or concurrent with the first ex-post monitoring |
| Reported value: | 2347.0 |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No) | Yes |
| Details of monitoring equipment: | Run Time Meters |
| Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD VVBs not specify the accuracy of the monitoring equipment, VVBs the monitoring equipment represent good monitoring practise? | Yes. QA/QC procedures stated in MR comply with VCS PD /15/ |
| Calibration frequency /interval:<br>Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification | NA |
| Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD VVBs not specify the frequency of calibration, VVBs the selected frequency represent good monitoring practise? | NA. |
| Company performing the calibration (internal or external calibration): | NA |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No): | NA |
| Is (are) calibration(s) valid for the whole reporting period? | NA |
| If applicable, has the reported data been cross-checked with other available data? | NA |

| | |
|---|---|
| How were the values in the monitoring report verified? | NA |
| VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, the data management ensures correct transfer of data from monitoring survey /09/ and reporting of emission reductions and all necessary QA/QC processes are in place. |
| In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved? | NA |

Sampling approach:-

As assessed in this section, emission reductions for the project "SHINE- Distribution of LED Lightbulbs in India -2" has being claimed for this monitoring period and the total population of the LED for this monitoring period (01-January-2021 to 31-May-2022) is 1,411,863 LEDs.

The sampling plan implemented by the PP is in accordance with the applied approved monitoring methodology /B02/ and the VCS PD /15/. The CME has appropriately performed Simple random Sampling procedure, reliability levels were set at 95% confidence and 10% precision in line with the applied methodology AMS-II.C, Version 15.0/B02/. As the VCS PD /15/ mentions the option for Simple random Sampling procedure, it is acceptable to the verification team.

The sampling surveys have been carried out by the well-trained personnel /12/. Monitoring parameters $O_i$ project and $n_i$ operational. are monitored through monitoring sample surveys. Monitoring of the parameters ensures compliance with the applied methodology AMS- II.C. – version 15 /B02/. Verification team has checked the survey records /7/ and sample size calculation/13/. Parameter $o_i$ project monitors the average annual operating hours of project LEDs and the parameters $n_i$ operational are used to calculate number of group i project LEDs that are operational during time interval 't'.

PP has applied sampling for the current monitoring period. A confidence/precision level of 95/10 has been used by the PP for all the monitoring parameters determined through applying simple random sampling. Survey has been carried out. This is in accordance with the sampling plan provided in the registered VCS PD /15/. The sample size calculations for each of the monitoring parameters monitored through the sampling have been provided in the table below. The sample size was calculated using the formula provided by Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities (Version 04.0)/B04/.

PP has provided the detailed sample size calculation under section 4.3 of the MR /01-b/

The above table mentions the sample size calculated applying the formula;

$$n \geq \frac{1.645^2 N \times p \times (1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 p \times (1-p)}$$

**The resultant applied sample size by the PP are summarized below:**

| Grouped Project SHINE CPA 2 | Responded Samples | | | |
|---|---|---|---|---|
| | 7W LED | 9W LED | 12 W LED | 14 W LED |
| Sample Size | 43 | 43 | 43 | 43 |
| Number of LED Surveyed | 74 | 102 | 128 | 44 |
| Number of LED found operational- $n_i$ | 71 | 102 | 123 | 44 |
| Loss Rate | 4.054% | 0% | 3.906% | 0% |
| Precision achieved | 0.05% | 0% | 3.49% | 0% |

VVB used sampling during verification for checking the operational status in the households. The sampling done by VVB reflects the population of the project activity. Applying paragraph 39 (c) of the sampling standard, version 09 /B04/, a sample size of 11 each strata (i.e., 7W, 9W,12W and 14W)was chosen (with no discrepant records). A sample size of 11 each strata (i.e., 7W, 9W,12W and 14W) was determined, based on an AQL of 0.5% and UQL of 20%, producer risk 10% and consumer risk 10%. Acceptance number (c) thus determined for the sample is 0. VVB interviewed 45 samples .It was observed that out of the 45 samples, all the 45 LEDs (11 samples each of 7W, 9W, 12W and 14W and 1 extra) were found to be operational and this matched with the PP's records and hence no discrepant records were observed with the MR /01-b/ and ER sheet /02-b/ and thus c=0. Thus, PP's set of records has been accepted in line with § 33 of the sampling standard, version 09 /B04/. Verification team has cross verified these sample documents.

The monitoring parameters to be monitored through the sampling plan are:

1. Number of operational project lamps during the monitoring period ($n_{i\ operational}$)

2. Operating hours of replaced ICL lamps or installed LEDs using run time meters ($O_{i\ project}$)

Simple random sampling was applied by the PP for selection of the monitoring samples with 90/10 confidence/precision for determining the sampling for all the parameters which is deemed acceptable as per the VCS PD /15/.

On-site assessment of Monitoring parameters (namely $n_{i\ operational}$ and $O_{i\ project}$) was conducted based on following two methods:

☐ Confirmation with the household/end user whether or not the PP has performed monitoring/measurement campaign (or parameter $n_{i\ operational}$ ) and survey on LED bulbs operation ( for the parameter $O_{i\ project}$ ).

☐ Assessment of Competence of personnel involved in conducting standardized tests viz., $n_{i\ operational}$ and $O_{i\ project}$ and surveys: Verification team has reviewed the abilities, qualifications and recognition of involved personnel and institutions of the measuring team involved in the $n_{i\ operational}$ and $O_{i\ project}$ . The verification team based on onsite visit interviews confirms that the team was qualified to carry out the $n_{i\ operational}$ and $O_{i\ project}$ in line with the methodology.

PP has explained the process of conducting measurement campaign. surveys was done via data loggers. The operating hours ($O_{i\ project}$) was measured continuously for a period of 90 days with the help of run time meters installed on a sample of lighting points. On-site surveys were conducted by third party monitoring team to estimated the number of operational LEDs. This was done by visiting the premises, visual inspection, and interview with the LED user to assess whether the LEDs have project logo and were operational.

During the onsite visit interviews (video call) with PP's representative, VVB was able to understand the process in line with the methodology AMS II-C version 15/B02/ and the PP monitoring procedure in line with the registered VCS PD /15/.

It is worth to note here that PP has selected the same households for both parameters above and for the same reason, VVB's sample for acceptance sampling was the same for both the parameters. VVB could verify the original survey forms /07/ and data/information flow to sampling sheet and ER spread sheet. No discrepancy was found in the data/information flow. As per the section 2.3 above the end users were not interviewed in a single day. Moreover, PP has conducted the monitoring survey/01/ from 01 January 2021 to 31 May 2022. Hence, the survey process deemed acceptable to the verification team.

Furthermore, the database /09/ and sample sales invoice /10/ was also checked/cross verified to confirm the number LEDs for the parameter $n_{i\ operational}$.

As per paragraph 25 of the Sampling Standard, version 09 /B04/, the verification team has to verify whether the project participants entity have implemented the sampling and surveys according to the sampling plan in the registered monitoring plan. The verification includes determining:

(a) Whether the required confidence/precision has been met;

(b) Whether the selected sample was representative of the population.

As per the applied methodology /, and registered VCS PD /15/. The necessary confidence / precision of 95/10 each of the parameters are met. This has been cross verified by the verification team from the supporting documents submitted/13/.

Verification team confirms that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence and

calculations are done in accordance with the pre-defined formulae from registered VCS PD /15/. The total number of emission reductions for the monitoring period (01-January-2021 to 31-May-2022) is 278,782 $tCO_2e$.

The verification team has checked and confirmed the calculations in the spreadsheet and found to be accurate. The monitoring report is supported by emission reduction spreadsheet. The consistency and formula were verified and found to be accurate

## 4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

When verifying the report emission reduction, CCIPL ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data are shown above.

When assessing the audit trails, CCIPL also examined:

1. whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period

2. the source and nature of the evidence

3. if comparable information was available from sources other than that used in the monitoring report, CCIPL cross-checked the monitoring report against the other sources to confirm that the stated figures were correct. The sources and the data referenced are shown in Appendix 1 below.

CCIPL also assessed that the data collection system met the requirements of the monitoring plan as per the applied methodology.

Proper data management inclusive of data acquisition and aggregation, data management system is being followed for the project activity.

The monitoring personnel at site are well trained and follow reproducible routines. Thus, they are competent to carry out the relevant tasks with sufficient accuracy.

## 4.6 Non-Permanence Risk Analysis

Not applicable

# 5 5 VERIFICATION CONCLUSION

The Project Participant, Brightspark Energy Private Limited, has commissioned the VVB, Carbon Check (India) Private Ltd. to perform an verification of the VCS Project Activity “SHINE- Distribution of LED Lightbulbs in India -2”. This report summarises the findings of the verification of the project, performed based on VCS criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The verification process was performed based on all guidance and criteria as provided in VCS Standard version 4.3 /B01-a/, VCS Program Guide version 4.2 /B01-b/, VCS Validation and Verification Manual version 3.2 /B01-c/ and Registration & Issuance Process version 4.1 /B01-d/.

The selected baseline and monitoring methodology (AMS-II.C, Version 15.0) is applicable to the project and correctly applied.

The verification team confirm that the project has been implemented in accordance with the project description/15/.

Verification period: From 01-January-2021 to 31-May-2022 (both days inclusive)

Verified GHG emission reductions and removals in the above verification period:

| Year | Baseline emissions or removals ($tCO_2e$) | Project emissions or removals ($tCO_2e$) | Leakage emissions ($tCO_2e$) | Net GHG emission reductions or removals ($tCO_2e$) |
|---|---|---|---|---|
| Year 2021<br>(01-January- 2021 to 31-December-2021) | 244,967 | 51,345 | 0 | 193,621 |
| Year 2022<br>(01-January-2022 to 31-May-2022) | 107,038 | 21,877 | 0 | 85,161 |
| Total | 352,005 | 73,222 | 0 | 278,782 |

The verification team is of the opinion that the project has been implemented in accordance with the registered project description, the MP with complies with the approved monitoring methodology, the monitoring complies with the MP and the monitored data and calculation of ERs are assessed and confirmed as correct.

Therefore, CCIPL hereby certifies, and requests the issuance of, the reported ERs during the monitoring period of 01-January-2021 to 31-May-2022 amounting to 278,782 tCO2e to the VCS Registry

# 6 APPENDIX 1.1 : REFERENCE DOCUMENTS

| Ref | Document |
|---|---|
| /01/ | a) Monitoring report Version 1, dated 08-September-2022<br>b) Monitoring report Version 1.1, dated 11-October-2022<br>c) Monitoring report Version 1.2, dated 22-October-2022 |
| /02/ | ER sheet corresponding to:<br>• /01-a/<br>• /01-b/<br>• /01-c/ |
| /03/ | Registration certificate dated : 12-August-2018 (which is the date when first energy efficient LED has been distributed) |
| /04/ | Test Report for 7W, 9W,12W AND 14W as per IS 16102 (Part 2):2012. |
| /05/ | Proof of right of VERs. |
| /06/ | Company registration certificate for the PP |
| /07/ | Survey records for the monitoring period containing the record of feedback received from stakeholders |
| /08/ | a) Proof of cash inflow assumptions of NPV worksheet.<br><br>1) One time cash collected from households: ₹10/ICL from the mail dated 25/12/2020.<br><br>b) Description and estimates of the cash outflow assumptions of NPV worksheet by CME.<br><br>Key cash outflow assumptions are as follows:<br><br>1) Procurement cost of LED: Average cost of LED is ₹91.845 email dated 13/03/2019 from LED manufacturer, HPL Electric & Power Limited.<br>2) Disposal of ICLs:calculated based on ICL collection and disposal agreement.<br>3) Replacement cost for fused LEDs: Calculated based on Lamp failure rate sourced from Ujala dashboard (Govt. of India) and above-mentioned Procurement cost of LED.<br><br>4) Distribution cost of LED: ₹21.24/LED sourced from email dated 13/03/2019 from LED manufacturer, HPL Electric & Power Limited.<br>5) Software development cost: Calculated from service agreement for project management dated 13/02/2018.<br><br>a)Proof of discount rate considered.<br><br>Discount rate of 6.70% (10 year G-Sec Par Yeild) sourced from Reserve Bank of India weblink (https://m.rbi.org.in/scripts/WSSView.aspx?Id=23212). |
| /09/ | Database for baseline lamps collection and LED distribution for the monitoring period |
| /10/ | Registration certificate (for unique identification of each of the LEDs) |
| /11/ | Monitoring survey questionnaire template |
| /12/ | Training records |
| /13/ | Sampling sheet for selection for the parameters opted for monitoring survey |

| | |
|---|---|
| /14/ | End user consent deed / Carbon Credit waivers |
| /15/ | VCS PD for the grouped project "SHINE- Distribution of LED Lightbulbs in India-2" (version 2.2, dated 21-January-2022) and it corresponding validation report version 04, dated 22-January-2022 . |
| /16/ | Verification contract in between CCIPL and "Brightspark Energy Private Limited" dated 15/04/2022. |
| /17/ | Life Test reports for 7W, 9W, 12W and 14 W |
| /18/ | • Grievance records log books<br>• Lamp replacement register |
| /19/ | Declaration from the project proponent that the project is not creating any other form of environmental credit under any specific program. |
| /20/ | Declaration from the project proponent that the project has not or shall not claim carbon credits any other scheme after Registration of the project under VCS and confirmation on the geographical boundaries. |
| /21/ | Destruction certificates |
| /22/ | Destruction Certificate of baseline lamps. between CME and Auctus E-Recycling Solutions (P) Ltd. |

# 7 APPENDIX 1.2: BACKGROUND DOCUMENTS

| Ref | Document |
|---|---|
| /B01/ | VCS Requirements<br>a. VCS Standard (v4.3, dated 22-June-2022)<br>b. VCS Program Guide (v4.2, dated 22-June-2022)<br>c. VCS Validation and Verification Manual version (v3.2, dated 19-October-2016)<br>d. Registration & Issuance Process (v4.2, dated 22-June-2022)<br>e. VCS Program Definitions version (v4.2, dated 22-June-2022)<br>f. VCS MR template version 4.1 (dated 20-January-2022) |
| /B02/ | Applied baseline and monitoring methodology<br>• CDM Methodology: AMS-II.C.: Demand-side energy efficiency activities for specific technologies --- Version 15.0 |
| /B03/ | Methodological Tool<br>•<br>• Methodological tool 19: Demonstration of additionality of microscale project activities Version 09.0 |

| | |
|---|---|
| | • Methodological tool 21: Demonstration of additionality of small-scale project activities Version 12.0 |
| /B04/ | a. "Standard for sampling and surveys for CDM project activities and programme of activities" (version 09.0)<br>b. Guidelines for sampling and surveys for CDM project activities and Programme of Activities (version 04) |
| /B05/ | CDM registered POA DD and corresponding validation report<br>CDM registered CPA DD and corresponding validation report |
| /B06/ | Website and links:<br>1. IPCC (http://www.ipcc-nggip.iges.or.jp)<br>2. http://cdm.unfccc.int<br>3. http://www.v-c-s.org |

# APPENDIX 2: ABBREVIATIONS

| | |
|---|---|
| **CDM** | Clean Development Mechanism |
| **BE** | Baseline Emission |
| **CAR** | Corrective Action Request |
| **CCIPL** | Carbon Check (India) Private Ltd. |
| **CDM** | Clean Development Mechanism |
| **CL** | Clarification Request |
| **$CO_2$** | Carbon Dioxide |
| **$CO_{2e}$** | Carbon Dioxide Equivalent |
| **DPR** | Detailed project report |
| **DVR** | Draft Verification Report |
| **EB** | CDM Executive Board |
| **EF** | Emission Factor |
| **ER** | Emission Reduction |
| **FAR** | Forward Action Request |
| **FVR** | Final verification Report |
| **GHG** | Greenhouse gas(es) |
| **GWh** | Giga Watt Hour |
| **IPCC** | Intergovernmental Panel on Climate Change |
| **MW** | Mega Watt |
| **MWh** | Mega Watt Hour |
| **NA** | Not Applicable |
| **OSV** | On Site Visit |
| **PD** | Project Description |
| **PP** | Project Proponent |
| **QC/QA** | Quality control/Quality assurance |
| **TR** | Technical Review |
| **UNFCCC** | United Nations Framework Convention on Climate Change |
| **VCS** | Verified Carbon Standard |
| **VCSA** | Verified Carbon Standard Association |
| **VCU** | Verified Carbon Unit |
| **VVB** | Validation Verification Body |
| **VVM** | Validation and Verification Manual |
| **VVS** | Validation and Verification Standard |

# APPENDIX 3: CERTIFICATES OF COMPETENCE

Carbon CHECK

**Carbon Check (India) Private Ltd.**

**Ms. Pallavi Gedam**

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

*For following functions:*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Validator** | ☒ | **Team Leader** | ☒ | **Technical reviewer** | ☐ | | |
| **Verifier** | ☒ | **Technical Expert** | ☒ | **Local Assessor**[1] | ☒ | | |

*In the following Technical Areas:*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **TA 1.1** | ☐ | **TA 4.1** | ☐ | **TA 9.1** | ☐ | **TA 13.1** | ☐ |
| **TA 1.2** | ☒ | **TA 5.1** | ☐ | **TA 9.2** | ☐ | **TA 13.2** | ☐ |
| **TA 3.1** | ☒ | **TA 5.2** | ☐ | **TA 10.1** | ☐ | **TA 14.1** | ☐ |

**Mr. Vikash Kumar Singh**
**Compliance Officer**

**Mr. Amit Anand**
**CEO**

**Date of Approval**
29/11/2021

**Valid Till**
28/11/2022

**Revision History of the Document**

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|---|---|
| 01/03/2020[2] | Interim Revision for office address change |
| 01/09/2020 | Interim Revision for CCIPL logo change |
| 24/12/2020 | Annual Revision |
| 29/11/2021 | Revision in response to qualification as Team Leader and Technical Expert |

[1] India

[2] Please refer to previous version of competency certificates for the revision history.

CARBON CHECK (INDIA) PRIVATE LIMITED
**CIN:** U74930DL2012PTC232495
**Regd. Off:** 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
**Corporate off:** Unit No. 1701, Logix City Centre Office Tower, Plot No. BW-58, Sector-32 Noida, Uttar Pradesh
**Tel:** +91 120 4373114 | **URL:** www.carboncheck.co.in | **e-mail:** info@carboncheck.co.in

Carbon CHECK

# Carbon Check (India) Private Ltd.

## Mr. Vijay Mathew

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

*For following functions:*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Validator** | ☒ | **Team Leader** | ☒ | **Technical reviewer** | ☒ | | |
| **Verifier** | ☒ | **Technical Expert** | ☒ | **Local Assessor**[1] | ☒ | | |

*In the following Technical Areas:*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **TA 1.1** | ☐ | **TA 4.1** | ☐ | **TA 9.1** | ☐ | **TA 13.1** | ☐ |
| **TA 1.2** | ☒ | **TA 5.1** | ☐ | **TA 9.2** | ☐ | **TA 13.2** | ☐ |
| **TA 3.1** | ☐ | **TA 5.2** | ☐ | **TA 10.1** | ☐ | **TA 14.1** | ☐ |

**Mr. Vikash Kumar Singh**
**Compliance Officer**

**Mr. Amit Anand**
**CEO**

**Date of Approval**
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Carbon CHECK

## Carbon Check (India) Private Ltd.

### Ms. Aparna Chaudhary

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

*For following functions:*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Validator** | ☒ | **Team Leader** | ☒ | **Technical reviewer** | ☐ | | |
| **Verifier** | ☒ | **Technical Expert** | ☒ | **Local Assessor**[1] | ☒ | | |

*In the following Technical Areas:*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **TA 1.1** | ☐ | **TA 3.1** | ☒ | **TA 9.1** | ☐ | **TA 13.1** | ☐ |
| **TA 1.2** | ☒ | **TA 4.1** | ☐ | **TA 9.2** | ☐ | **TA 13.2** | ☐ |
| **TA 2.1** | ☐ | **TA 5.1** | ☐ | **TA 10.1** | ☐ | **TA 14.1** | ☐ |

**Mr. Vikash Kumar Singh**
**Compliance Officer**

**Mr. Amit Anand**
**CEO**

**Date of Approval**
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**Tel:** +91 120 4373114 | **URL:** www.carboncheck.co.in | **e-mail:** info@carboncheck.co.in

Carbon CHECK

## Carbon Check (India) Private Ltd.

## Ms. Indumathi. C

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

*For following functions:*

| | | | | | |
|---|---|---|---|---|---|
| Validator | ☐ | Team Leader | ☒ | Technical reviewer | ☒ |
| Verifier | ☐ | Technical Expert | ☒ | Local Assessor[1] | ☒ |

*In the following Technical Areas:*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TA 1.1 | ☒ | TA 4.1 | ☐ | TA 9.1 | ☐ | TA 13.1 | ☒ |
| TA 1.2 | ☒ | TA 5.1 | ☐ | TA 9.2 | ☐ | TA 13.2 | ☒ |
| TA 3.1 | ☒ | TA 5.2 | ☐ | TA 10.1 | ☐ | TA 14.1 | ☐ |

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

**Date of Approval**
24/12/2021

**Valid Till**
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# APPENDIX 4: FINDINGS LOG

Table 1. CLs from this Validation

| Finding | **CL 01** | | |
|---|---|---|---|
| **Classification** | ☐ CAR | ☒ CL | ☐ FAR |
| **Description of finding** *(VVB)* | During the on-site visit it is understood the LEDs will be distributed only to the households. Whereas, MR states "*Under this grouped project, households, small and medium enterprises and commercial offices and shops were envisaged to be provided with highly subsidized LEDs as a replacement*……." PP to clarify the same | | |
| **Corrective Action or clarification #1**<br>*(PP shall write a detailed and clear corrective action or further information for clarification as per finding)* | PP would like to clarify that under this grouped project, project LEDs have been distributed in only in grid connected households of Assam and Tripura. Section 2.1 of the VCS MR has been amended accordingly. | | |
| **VVB Assessment #1**<br>*The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.* | PP has submitted the revised MR section 2.1 . This has been checked and verified by the verification team and deemed acceptable. Hence, this CL is closed. | | |
| **Conclusion**<br>*Tick the appropriate checkbox* | ☐ To be checked during the next periodic verification<br>☐ Outstanding finding (not closed)<br>☒ The finding is closed | | |

| Finding | **CL 02** | | |
|---|---|---|---|
| **Classification** | ☐ CAR | ☒ CL | ☐ FAR |

| Finding | **CL 02** |
|---|---|
| **Description of finding** *(VVB)* | PP is needed to provide the below documents<br>• Bulbs Replacement records LED to LED (logs books/excel files)<br>• Actual collection record as stored in database baseline lamps<br>• Destruction records<br>• Some screenshot of the DMS system<br>• Scanned monitoring survey forms<br>• Life test report as confirmed by the manufacturer batch wise<br>• Agreement between the Destruction party and PP.<br>• Proof of Carbon waiver from end users and the distribution partners (Copy of consent letter)<br>• Grievance log books |
| **Corrective Action or clarification #1**<br>*(PP shall write a detailed and clear corrective action or further information for clarification as per finding)* | *All the above stated documents have been submitted to the VVB.* |
| **VVB Assessment #1**<br>*The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.* | PP has submitted the requested documents, this has been checked and verified by the verification team. Hence deemed appropriate, this CL is closed. |
| **Conclusion**<br>*Tick the appropriate checkbox* | ☐ To be checked during the next periodic verification<br>☐ Outstanding finding (not closed)<br>☒ The finding is closed |

| Finding | **CL 03** | | |
|---|---|---|---|
| **Classification** | ☐ CAR | ☒ CL | ☐ FAR |
| **Description of finding** *(VVB)* | In section 4.3 in the table under “sampling” mentions “*100 percent of data was monitored*” PP to clarify the same. Moreover, PP to clarify on the sampling approach of 95% confidence and 10% precision, as it is not in line with the sampling plan Section B.5.2 of the registered CDM CPA DD. | | |

| Finding | CL 03 |
|---|---|
| **Corrective Action or clarification #1**<br>*(PP shall write a detailed and clear corrective action or further information for clarification as per finding)* | *As per the requirement stated in AMS -II.C. version 15.0, i.e., a minimum of 90% confidence interval and 10% maximum error margin has to be considered for estimating the sample size to be surveyed.*<br><br>*However, as per sampling guidelines: Sampling and surveys for CDM project activities and programmes of activities version 04, the higher the required confidence and the narrower the precision, the more samples are required to be surveyed. Therefore, to be more precise and taking a conservative approach, PP has considered 95% confidence interval and 10% maximum error margin.* |
| **VVB Assessment #1**<br>*The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.* | Justification provided by the PP is deemed acceptable by the verification team. Hence, this CL is closed. |
| **Conclusion**<br>*Tick the appropriate checkbox* | ☐ To be checked during the next periodic verification<br>☐ Outstanding finding (not closed)<br>☒ The finding is closed |

| Finding | CL 04 | | |
|---|---|---|---|
| **Classification** | ☐ CAR | ☒ CL | ☐ FAR |
| **Description of finding** *(VVB)* | As per the registered VCS PD and CDM CPA DD, the LED distribution was envisaged to be carried out within the North-East Indian states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. However, during the onsite visit it is found that the distribution is only done Assam and Tripura, and no further distribution has been planned under this grouped project. PP to clarify the same. | | |

| Finding | CL 04 |
|---|---|
| **Corrective Action or clarification #1**<br>*(PP shall write a detailed and clear corrective action or further information for clarification as per finding)* | *PP would like to confirm that at conceptual stage, the LED distribution was envisaged in North- East Indian states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. However, during implementation stage, LED distribution has been carried out in Assam and Tripura only.*<br><br>*Same information has been provided in section 1.7 and section 3.1 of the VCS MR. Declaration in this regard is also being submitted to the VVB.* |
| **VVB Assessment #1**<br>*The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.* | PP has submitted the declaration in the regards of the implementation done in the state of Assam. Also revised MR has been submitted, which is been checked and verified by the verification team. This clarification is deemed acceptable by the verification team. Hence, this CL is closed. |
| **Conclusion**<br>*Tick the appropriate checkbox* | ☐ To be checked during the next periodic verification<br>☐ Outstanding finding (not closed)<br>☒ The finding is closed |

| Finding | CL 05 | | |
|---|---|---|---|
| **Classification** | ☐ CAR | ☒ CL | ☐ FAR |
| **Description of finding** *(VVB)* | As per the applied methodology AMS II C version 15, §53 ,PP need to provide the clarification on the accountability of the Lamp Failure Rate (LFRi,y) during this monitoring period. | | |

<table>
<tr><th>Finding</th><th>CL 05</th></tr>
<tr><td>Corrective Action or clarification #1<br>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</td><td>As per the methodology AMS-II.C., version 15, PP has applied option 1- “Use of annually monitored data” provided under section 53, to determine the number of project LEDs that are operational during time interval ‘t’($n_{i\ operational}$) .<br><br>Further, as per the information provided in section 4.3 of the VCS MR, PP has conducted ex post monitoring survey on sample basis through on-site visit by competent third party. Under the monitoring survey, the LED user was interviewed, and the project LEDs were visually inspected to assess whether the LEDs have project Logo and whether they were operational or not.<br><br>Hence, based on ex-post monitored data received, the loss rate of project LEDs have been calculated as-<br><br>$\frac{(Number\ of\ distributed\ LEDs - Number\ of\ operationa}{Number\ of\ distributed\ LEDs}$<br><br>The loss rates observed for project LEDs have been mentioned below:<br><br>
<table>
<tr><th rowspan="2">Grouped Project SHINE CPA 2</th><th colspan="4">Responded Samples</th></tr>
<tr><th>7W LED</th><th>9W LED</th><th>12 W LED</th><th>14 W LED</th></tr>
<tr><td>Sample Size</td><td>43</td><td>43</td><td>43</td><td>43</td></tr>
<tr><td>Number of LED distributed</td><td>74</td><td>102</td><td>128</td><td>44</td></tr>
<tr><td>Number of LED found operational- $n_i$</td><td>71</td><td>102</td><td>123</td><td>44</td></tr>
<tr><td>Loss Rate</td><td>4.054%</td><td>0%</td><td>3.906%</td><td>0%</td></tr>
</table>
</td></tr>
<tr><td>VVB Assessment #1<br>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</td><td>PP has clarified on the accountability of the Lamp Failure Rate (LFRi,y) during this monitoring period. This clarification is deemed acceptable by the verification team. Hence, this CL is closed.</td></tr>
<tr><td>Conclusion<br>Tick the appropriate checkbox</td><td>☐ To be checked during the next periodic verification<br>☐ Outstanding finding (not closed)<br>☒ The finding is closed</td></tr>
</table>

Table 2. CARs from this Project Verification

| Finding | CAR 01 | | |
|---|---|---|---|
| **Classification** | ☒ CAR | ☐ CL | ☐ FAR |
| **Description of finding** *(VVB)* | In section 5.1 of the MR, PP has calculated energy consumption for the baseline (ICLs) in year y (kWh) for 60W ICL replacing 7W and 9W LEDs. However, the formula is not stated, also the calculation for the same is found to be incorrect. PP needs to state and apply the correct version of the formula. | | |
| **Corrective Action or clarification #1**<br>*(PP shall write a detailed and clear corrective action or further information for clarification as per finding)* | The formula for energy consumption in year y by baseline devices (ICLs) has been added in section 5.1 of the VCS – MR version 1.1. | | |
| **VVB Assessment #1**<br>*The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.* | PP has provided the revised MR. Section 5.1 has been updated with the correct formula for energy consumption in year y by baseline devices. Hence, this CAR is closed. | | |
| **Conclusion**<br>*Tick the appropriate checkbox* | ☐ To be checked during the next periodic verification<br>☐ Outstanding finding (not closed)<br>☒ The finding is closed | | |

| Finding | CAR 02 | | |
|---|---|---|---|
| **Classification** | ☒ CAR | ☐ CL | ☐ FAR |
| **Description of finding** *(VVB)* | In Section 5.2 of MR, PP has not mentioned the formula for energy consumption in year y for Project emissions. PP needs to state the modified formula accordingly. Also, the calculation for the same is found to be incorrect. PP needs to state and apply the correct version of the formula and values. | | |
| **Corrective Action or clarification #1**<br>*(PP shall write a detailed and clear corrective action or further information for clarification as per finding)* | The formula for energy consumption in year y by project LEDs has been added in section 5.2 of the VCS – MR version 1.1. | | |
| **VVB Assessment #1**<br>*The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.* | PP has provided the revised MR. Section 5.2 of the MR has been updated with the correct formula for energy consumption in year y by baseline devices. Hence, this CAR is closed. | | |
| **Conclusion**<br>*Tick the appropriate checkbox* | ☐ To be checked during the next periodic verification<br>☐ Outstanding finding (not closed)<br>☒ The finding is closed | | |