



# SHINE – DISTRIBUTION OF LED LIGHTBULBS IN INDIA -6

Document Prepared By



**VKU Certification Pvt. Ltd.**

Regd. Off: Flat No. 306, Sky Star, N-1, New Rani Bagh Khandwa Road, Indore, Madhya Pradesh, India - 452020

URL: <http://vkucertification.com>

E-mail: [info@vkucertification.com](mailto:info@vkucertification.com)

|                      |                                                   |
|----------------------|---------------------------------------------------|
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|                            |                                                                                                                                                                                                                                                                                  |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report Title</b>        | SHINE- Distribution of LED Lightbulbs in India -6                                                                                                                                                                                                                                |
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| <b>Prepared By</b>         | VKU Certification Pvt. Ltd                                                                                                                                                                                                                                                       |
| <b>Contact</b>             | Regd. Off: Flat No. 306, Sky Star, N-1, New Rani Bagh Khandwa Road,<br>Indore, Madhya Pradesh - 452020<br><br>URL: <a href="http://vkucertification.com">http://vkucertification.com</a><br><br>E-mail: <a href="mailto:info@vkucertification.com">info@vkucertification.com</a> |
| <b>Approved By</b>         | Dr. Vikas Kumar Aharwal (Founder and Director)<br><a href="mailto:vikas.aharwal@vkucertification.com">vikas.aharwal@vkucertification.com</a>                                                                                                                                     |
| <b>Work Carried Out By</b> | Team Leader cum Technical Expert T.A 3.1- Barun Kumar<br><br>Technical Reviewer cum Technical Expert T.A 3.1- Sanjay Kumar<br><br>Validator/Verifier – Shivani Chauhan<br><br>Validator/Verifier-Trainee- Apoorva Tripathi<br><br>Project Trainee – Sanjana Bhana                |

## Summary:

VKU Certification Pvt. Ltd. (hereafter referred as VKU) was commissioned by Brightspark Energy Private Limited (hereafter referred as PP), has verified the greenhouse gas emission reductions reported for the grouped project **“SHINE- Distribution of LED Lightbulbs in India -6”** (VCS ID 2700) in India, covering monitoring period from **01-June-2022 to 30-June-2023** (Inclusive of both start and end dates) with regard to the relevant requirements for VCS Standard version 4.5/09/.

The project involves the distribution of LEDs maximum five and minimum one (**7 W and/or 12 W**) to an individual grid connected household under a single project activity instance. A total of **4,634,219 LEDs** has been distributed to **928,699** grid connected households located in the state of Uttar Pradesh (East), till **01-May-2022** and no further distribution of project LEDs has been carried out or planned after 01-May-2022 under this grouped project activity, hence no distribution happened in the current monitoring period.

**Purpose of Verification:** The purpose of the verification is to have an independent review of ex-post determination of the monitored reductions in GHG emission reductions and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive and presented in a concise and transparent manner from **01-June-2022 to 30-June-2023** (Inclusive of both start and end dates) under fixed crediting period of 10 years from **25-March-2021 to 24-March-2031** (Inclusive of both start and end dates).

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

- To verify that the project is implemented as described in the registered VCS PD/04/ and CDM-CPA-DD/03/.
- To assess the project's compliance with other relevant rules including the host country legislation (India).
- To confirm that the monitoring system is implemented and fully functional to generate voluntary carbon units 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 verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan of the registered VCS PD/04/ and CDM-CPA-DD/03/;
- 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.

Verification was conducted using VKU's procedures in line with the requirements specified in the VCS Program Guide version 4.4/08/, VCS Standard Version 4.5/09/, VCS Validation and Verification

Manual version 3.2/30/, CDM Validation and Verification Standard 3.0/32/, and applying standard auditing techniques.

The verification consisted of desk review, on-site assessment and the resolution of outstanding issues and the issuance of the final verification report and certification.

VKU followed the rule-based approach to perform this verification. During the course of verification, related to operation, monitoring and GHG emission reduction calculation of the VCS project activity in relation to all relevant VCS requirements for the project activity and the applied baseline and monitoring methodology and a total of **06** findings were raised, which includes: **03** Corrective Action Request (CARs); **03** Clarification Requests (CLs) and **00** Forward Action Requested (FAR). All the findings were raised and successfully resolved by the PP. The same has been discussed in Appendix-B of this verification report.

The verification team ensured that the reported emission reductions are complete and accurate in accordance with applicable VCS requirements in order to be certified therefore the verification team has detected no further uncertainties.

The GHG emission reductions were calculated on the basis of the approved methodology (AMS-II.C) "Demand-side energy efficiency activities for specific technologies", Version 15.0 /11/ and the monitoring plan included in the registered VCS PD /04/ and CDM-CPA-DD/03/.

#### **Summary of the verification conclusion;**

In conclusion, it is VKU's opinion that the grouped project activity **"SHINE- Distribution of LED Lightbulbs in India -6"** (VCS ID 2700), meets all relevant requirements for VCS standard and guidelines and correctly applies the baseline and monitoring methodology (AMS-II.C) **" Demand-side energy efficiency activities for specific technologies, Version 15.0/11/**. The monitoring system is in place and the emission reductions are calculated without material misstatement. Hence, VKU is able to certify that the emission reductions from the project during the second monitoring period from **01-June-2022 to 30-June-2023** (Inclusive of both start and end dates) under fixed crediting period of 10 years from **25-March-2021 to 24-March-2031** (Inclusive of both start and end dates) amounts to **1,217,095 tCO<sub>2</sub>e**.

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# 1 INTRODUCTION

## 1.1 Objective

Brightspark Energy Private Limited (hereafter referred as PP) commissioned VKU Certification (hereafter referred as VKU) to carry out the second verification of the project **“SHINE- Distribution of LED Lightbulbs in India -6”** (VCS 2700) for the period from **01-June-2022 to 30-June-2023** (Inclusive of both start and end dates) for a period of **13 months (395 days)**.

The objectives of this verification exercise are, by review of objective evidence, to establish:

- An independent evaluation of grouped project activity by an accredited validation and verification body against the requirements of the VCS Program Guide Version 4.4/08/, VCS standard version 4.5/09/ and UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting, on the basis of the registered VCS PD/04/ and CDM-CPA-DD/03/.
- The grouped project activity has been implemented and operating as per the registered VCS PD/04/ and CDM-CPA-DD/03/ and that all physical features (technology, project equipment, and monitoring) of the project are in place;
- Monitoring report/01/ and other supporting documents are complete;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.
- To confirm that the monitoring system is implemented and fully functional to generate Verified Carbon Units (VCUs) without any double counting/07/
- 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.

The verification process is conducted with the goal of smooth execution and complete operational effectiveness of the monitoring system, assuring the precise generation of Verified Carbon Units (VCUs) without encountering any double counting/30/. Furthermore, a thorough examination of the monitoring records and emissions reduction calculations was performed to ensure the data's comprehensiveness, coherence, transparency, and absence of significant errors or omissions, all in pursuit of establishing the trustworthiness and credibility of the data.

## 1.2 Scope and Criteria

The scope of this verification is the independent, objective review and ex-post determination of the monitored reductions in GHG emissions from the **“SHINE- Distribution of LED Lightbulbs in India -6”** (VCS ID 2700) in India. The verification of this project was based on the validated & registered VCS PD/04/ and and CDM-CPA-DD/03/and monitoring report/1/ along with supporting documents submitted by the project proponent to the VKU Assessment team. The documents thus submitted to the VKU Assessment team were reviewed against the following guidance & protocols:

- ✓ VCS Programme Guide Version 4.4 /08/
- ✓ VCS Standard Version 4.5 /09/
- ✓ VCS Program Definitions Version 4.4 /33/
- ✓ VCS validation and verification manual version 3.2/30/
- ✓ CDM: AMS-II.C- Demand-side energy efficiency activities for specific technologies, Version 15.0. /11/
- ✓ CDM: AMS-I.D: Grid connected renewable electricity generation; Version 18.0/12/
- ✓ CDM Standard: Validation and Verification Standard for Project Activities version 3.0/32/
- ✓ Methodological tool 19: Demonstration of additionality of microscale project activities Version 09.0/13/
- ✓ Methodological tool 21: Demonstration of additionality of small-scale project activities Version 12.0/14/
- ✓ CDM: Guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities, Ver. 4.0/15/
- ✓ CDM: Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 09.0 /16/
- ✓ General Guidelines for SSC CDM Methodologies version 22.1/48/

**The steps involved are as follows:**

- To verify that the project is implemented as described in the registered VCS PD/04/ and CDM-CPA-DD/03/.
- To assess the project's compliance with other relevant rules including the host country legislation (India).
- To confirm that the monitoring system is implemented and fully functional to generate voluntary carbon units (VCUs) without any double counting /07/.
- 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/02/.
- To verify that 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 method and criteria encompassed several phases, including

- Desk review of the MR/01/, ER/02/ and CDM-CPA-DD/03/ and VCS PD/04/, and other supporting documents listed in Table No.-05 below;
- Preparation of sampling plan by VKU assessment team by following the CDM sampling guideline/15/ and CDM sampling standard/16/. The assessment team has performed acceptance sampling by following the guideline and standard stated above as per the sampling survey sheet submitted by PP/24/.
- Onsite interviews with field staff and the local stakeholders of selected LED samples /29/;
- Resolution of outstanding issues by PP
- Completeness check and issuance of final verification report and applicable VCS Verification Deed of Representation.

Verification is not meant to provide any consultancy to the project proponents. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring

### 1.3 Level of Assurance

All the revisions in the verification report before being submitted to the client were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent VKU's procedure, with a **Reasonable level of assurance**, as per section **04 clause 4.1.2 and clause 4.1.10 (1) of the VCS Standard version 4.5/09/**.

Verification is not meant to provide any consultancy to the project proponents. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

The verification report is based on the Monitoring report /01/, registered VCS PD /04/, CDM-CPA-DD/03/ and supporting documents /17//18//19//20//21//22//23//24//25//26//27//28//37//38//39//40/made available to the assessment team and further information is also collected through performing interviews /36/ and site visit/29/.

The technical review was performed by a technical reviewer qualified in accordance with VKU's qualification procedure.

The following individuals were part of the Verification Team as presented in **Table No.-01** below:

| Role/Qualification                        | Last Name | First Name |
|-------------------------------------------|-----------|------------|
| Team Leader & Technical Expert (T.A. 3.1) | Kumar     | Barun      |
| Validator/Verifier                        | Chauhan   | Shivani    |
| Validator/Verifier-Trainee                | Tripathi  | Apoorva    |
| Project Trainee                           | Bhana     | Sanjana    |

The following individuals were part of the Technical Reviewer Team as presented in **Table No.-02** below: -

| Role/Qualification                               | Last Name | First Name |
|--------------------------------------------------|-----------|------------|
| Technical Reviewer & Technical Expert (T.A. 3.1) | Kumar     | Sanjay     |

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 **1 %**, as required by **section 4.1.10 of the VCS Standard version 4.5/09/**. The materiality of the project activity based on actual emission reductions achieved is **1% of 1,217,095 tCO<sub>2</sub>e which is equal to 12,170.95 tCO<sub>2</sub>e**.

## 1.4 Summary Description of the Project

This is the second verification for the grouped project **“SHINE- Distribution of LED Lightbulbs in India-6”**, which employs the methodology; AMS-II.C, Version 15/11/. The grouped project activity involves distribution of Light Emitting Diodes (LEDs) for domestic lighting in **38** districts of eastern Uttar Pradesh, within the Purvanchal Vidyut Vitaran Nigam Limited (PuVVNL) as stated in **Table No.3 of MR/01/** and Table No.- 3 of this report. The geo co-ordinates of the sites were verified by the assessment team during desk review through Google earth pro /35/ and the GPS map camera/34/ during the site visit of the selected samples and the location was found to be correct as per the registered VCS PD/04/ and CDM-CPA-DD/03/documents and this is found to be in line with the requirements of clause 3.11.1 of VCS Standard Version 4.5/09/.

The Table No.-03 below represents the geo co-ordinates of the different sites where distribution of LED took place till 01-May-2022.

| S.No. | Districts                    | Latitude  | Longitude |
|-------|------------------------------|-----------|-----------|
| 1     | Amethi                       | 26° 08' N | 81° 50' E |
| 2     | Azamgarh                     | 26° 03' N | 83° 13' E |
| 3     | Allahabad (Prayagraj)        | 25° 45' N | 81° 83' E |
| 4     | Badaun                       | 28° 04' N | 79° 13' E |
| 5     | Bahraich                     | 27° 34' N | 81° 38' E |
| 6     | Ballia                       | 25° 44' N | 84° 11' E |
| 7     | Barabanki                    | 26° 56' N | 81° 13' E |
| 8     | Bareilly                     | 28° 22' N | 79° 27' E |
| 9     | Basti                        | 26° 48' N | 82° 46' E |
| 10    | Sant Rabidas Nagar (Bhadohi) | 25° 24' N | 82° 38' E |
| 11    | Chandauli                    | 25° 26' N | 83.27' E  |
| 12    | Deoria                       | 26° 23' N | 83° 42' E |
| 13    | Faizabad                     | 26° 47' N | 82° 12' E |
| 14    | Fatehpur                     | 25° 55' N | 80° 52' E |
| 15    | Ghazipur                     | 25° 34' N | 83° 35' E |
| 16    | Gonda                        | 27° 28' N | 82° 01' E |
| 17    | Gorakhpur                    | 26° 45' N | 83° 24' E |
| 18    | Hardoi                       | 27° 23' N | 80° 10' E |
| 19    | Jaunpur                      | 25° 46' N | 82° 44' E |
| 20    | Kaushambi                    | 25° 53' N | 81° 38' E |
| 21    | Kushinagar                   | 26° 90' N | 83° 98' E |
| 22    | Lakhimpur Kheri              | 27° 95' N | 80° 77' E |
| 23    | Lucknow                      | 26° 55' N | 80° 59' E |
| 24    | Maharajganj                  | 27° 14' N | 83° 56' E |
| 25    | Mau                          | 25° 57' N | 83° 36' E |
| 26    | Mirzapur                     | 25° 10' N | 82° 37' E |
| 27    | Pilibhit                     | 28° 63' N | 79° 81' E |
| 28    | Pratapgarh                   | 25° 34' N | 81° 59' E |
| 29    | Rae Bareli                   | 26° 14' N | 81° 16' E |
| 30    | Sant Kabir Nagar             | 26° 77' N | 83° 09' E |
| 31    | Shajhanpur                   | 27° 87' N | 79° 91' E |
| 32    | Shravasti                    | 27° 70' N | 87° 94' E |
| 33    | Siddharth Nagar              | 27° 28' N | 83° 09' E |
| 34    | Sitapur                      | 27° 57' N | 80° 68' E |
| 35    | Sonbhadra                    | 24° 69' N | 83° 06' E |
| 36    | Sultanpur                    | 26° 27' N | 82° 08' E |
| 37    | Unnao                        | 26° 55' N | 80° 49' E |
| 38    | Varanasi                     | 25° 33' N | 82° 99' E |

The distribution has been done only in the eastern part of Uttar Pradesh as confirmed from the table No.-3 of MR/01/ and this was further confirmed during site visit by the assessment team and cross verified with the help of sampling survey sheet/24/ and the Installation database/23/ and ER sheet/02/ submitted by PP.

Under this grouped project, 60W ICL have been replaced with 7W LED and 100W ICL with 12W LED as the lumen output is within the specified limit as per the applied methodology/11/.

**Table No.-04** below states the baseline ICL wattage and the LED lumen output requirements as per the applied methodology/11/ and the installed LEDs Lumen output as per installed technology specifications/18/.

| S.No. | Lumen Output of Baseline technology Incandescent lamps | Lumen outputs of Installed LEDs | Percentage difference |
|-------|--------------------------------------------------------|---------------------------------|-----------------------|
| 1.    | 60 W=715 lm                                            | 7W = 740 lm                     | 99.2%                 |
| 2.    | 100 W= 1350lm                                          | 12W =1340 lm                    | 103%                  |

Each project activity instance refers to the number of project devices, i.e., number of LEDs distributed to each grid connected household. Maximum number of five LEDs (7 W and 12 W) were distributed to an individual grid connected household. Total **4,634,219 LEDs** have been distributed in **928,699 grid** connected households in the state of Uttar Pradesh (east) till **01-May-2022 which was under** the first monitoring period under VCS covering the monitoring period from **25-March-2021 to 31-May-2022** (Inclusive of both start and end dates). The last LED was distributed on **01-May-2022** as verified by assessment team through installation database/23/ and ER sheet/02/ submitted by PP and no further distribution of LEDs has been carried out or planned by PP after **01-May-2022** under this grouped project activity. This was further cross verified from the approved previous verification report/06/ where in section 4.1 it is clearly mentioned that no further distribution is planned from PP's end and same is mentioned in section 1.1 of monitoring report/1/.

The start date for the grouped project is **25-March-2021** which is the date when the first energy efficient LED has been distributed as per MR/01/ section 3.1 and the Installation database/23/ and ER sheet/02/ submitted by PP. The operational LEDs for the grouped project activity are 4,562,531 as confirmed from the ER sheet submitted by PP/02/.

The project proponent for the project activity; **Brightspark Energy Private Limited (Indian Subsidiary and Project Management Entity of C-Quest Capital LLC)**, owns the rights to Verified Carbon Units generated from this grouped project activity.

All the information stated above is verified through desk review and on-site assessment and it is found to be in line with the details provided in the registered VCS PD/04/ and CDM-CPA-DD/03/.

The total estimated GHG emission reductions of grouped Project activity for the current monitoring period from **01-June-2022 to 30-June-2023** (Inclusive of both start and end dates) under first crediting period from **25-March-2021 to 24-March-2031** (Inclusive of both start and end dates) are **1,217,095 tCO<sub>2</sub>e** which is slightly lesser than ex-ante ERRs based on monitoring survey result due to Loss Rate of 1.89% for 7 W LEDs and 1.39% for 12 W LEDs. This was confirmed with the help of monitoring survey sheet submitted by PP/37/ wherein the percentage of operational LEDs has been calculated. The project activity has been implemented as described in the registered VCS PD/04/ and CDM-CPA-DD/03/ and the emission reductions are calculated conservatively as per the applied methodology/11/.

## 2 VERIFICATION PROCESS

The project is already registered under VCS with reference number 2700/22/. The project is undergoing second verification under VCS which is conducted by VKU certification Pvt. Ltd. for the second monitoring period from **01-June-2022 to 30-June-2023** (Inclusive of both start and end dates) under fixed crediting period of 10 years, the approach adopted to ensure the quality of emission reductions is described in the following sections.

### 2.1 Method and Criteria

Verification was conducted using VKU's procedures in line with the requirements specified in the VCS Requirements, i.e., VCS Program Guide version 4.4/08/, VCS standard document version 4.5/09/. The GHG emission reductions are on the basis of the approved Baseline and monitoring methodology, **AMS-II.C- Demand-side energy efficiency activities for specific technologies, Version 15.0 /11 /**

**Scope: 03 Energy Demand**

**Project type: Type II – Energy Efficiency improvement project.**

**The verification consisted of the following thirteen phases**

- I. **Planning:** The assessment team initiates the GHG-program site visit by first conducting a desk review.
- II. **Strategic Analysis:** The assessment team conducted a strategic analysis to gain insights into the organization's, project's, or product's activities. This analysis was aimed at determining the scope and scale of the verification activities and will be utilized in the risk assessment process.
- III. **Risk Assessment;** The assessment team carried out a risk assessment of the GHG statement to identify the likelihood of a substantial error or noncompliance with the established criteria.
- IV. **Evidence Gathering Activities;** Using a risk-based approach assessment team prepared the evidence gathering activities to collect sufficient and appropriate evidence upon which to base the conclusion & determine whether the GHG statement conforms to the criteria, taking into account the principles of the standards that apply to the GHG statement.
- V. The requirement for a site visit is recognized, and subsequently, the planning for the site visit is undertaken
- VI. **Audit and Sampling Plan:** An audit plan is prepared, including all sub-elements required for an integrated verification process aligned with the contract, scope, objectives, level of assurance and materiality.
- VII. **Evidence Gathering Plan;** The evidence-gathering plan is formulated in accordance with the risk assessment conducted by VKU's Assessment Team. This plan is structured to

reduce the verification risk to a level considered acceptable. As a result, the evidence-gathering plan outlines the specific nature and scope of the evidence collection activities.

- VIII. **Client Confirmation and Approval:** The site visit audit plan is sent to the client for review and confirmation/approval via email.
- IX. **Document Review:** Relevant documents, such as the verification report, monitoring plan, methodology, VCS PD and QA/QC procedures are thoroughly reviewed.
- X. **On-Site Assessment:** This includes interviews and evaluation of the actual project scenario at site.
- XI. **Resolution of Discrepancies:** Any non-conformities identified during the assessment are addressed and resolved and documented in **Appendix-B** of this report.
- XII. **Independent Review:** An independent assessment was provided by the technical reviewer.
- XIII. **Final Verification:** After completeness checks, the verification report and certification are issued

The following sections outline each step involved in verification in more detail.

## 2.2 Document Review

During the document review, VKU 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 (MR) version 1.0 dated 31-July-2023 and MR version 1.1 dated 26-September-2023 and MR version 1.2 dated 04-October-2023 and **final MR version 1.3 dated 19-December-2023/01/**, were assessed as part of the verification.

The emission reduction (ER) calculations spreadsheet version 1.0 dated 31-July-2023 received from PP and version 02 dated 26-September-2023 and **final version 03 dated 04-October-2023/02/** were assessed along with the monitoring reports as part of the verification. In addition, the registered Project Documents VCS PD /04/ and CDM-CPA-DD/03/ in particular for the baseline estimations and the monitoring plan for the project was reviewed.

**Table No: 05 Lists of the documentation that were reviewed during the current verification:**

|      |                                                                                                                                                                                                                                                                                                                                                             |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /01/ | <p><b>Brightspark Energy Private Limited:</b> VCS monitoring report for “SHINE- Distribution of LED Lightbulbs in India -6”,</p> <ul style="list-style-type: none"> <li>Version 1.0 dated 31-July-2023</li> <li>Version 1.1 dated 26-September-2023</li> <li>Version 1.2 dated 04-October-2023</li> <li>Final Version 1.3 dated 19-December-2023</li> </ul> |
| /02/ | <p><b>Brightspark Energy Private Limited:</b> Emission Reduction Calculation spreadsheet “SHINE- Distribution of LED Lightbulbs in India -6”,</p>                                                                                                                                                                                                           |

|      |                                                                                                                                                                                                        |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <ul style="list-style-type: none"> <li>Version 1.0 dated 31-July-2023</li> <li>Version 02 dated 26-September-2023</li> <li>Final version 03 dated 04-October-2023</li> </ul>                           |
| /03/ | <u>CDM-CPA-DD/03/ 10484-P1-0006-CP1 under registered CDM Programme of Activities (PoA) 10484 titled:" SHINE – Distribution of LED Lightbulbs in India"</u>                                             |
| /04/ | <u>Brightspark Energy Private Limited, Registered VCS PD for the project SHINE – Distribution of LED Lightbulbs in India-3' version 2.1 dated 16-July-2022</u>                                         |
| /05/ | <u>Carbon Check (India) Private Ltd: Validation Report "SHINE – Distribution of LED Lightbulbs in India-6" version 04 dated 28-October-2022</u>                                                        |
| /06/ | <u>Carbon Check (India) Private Ltd: Previous Verification Report SHINE – Distribution of LED Lightbulbs in India-3 version 2.1 dated 01-December-2022</u>                                             |
| /07/ | <b>Brightspark Energy Private Limited:</b> Declaration to avoid double counting, non-inclusion of projects in other standards                                                                          |
| /08/ | <u>VCS: VCS Program Guide, version 4.4 dated 29-August-2023</u>                                                                                                                                        |
| /09/ | <u>VCS: VCS Standard, version 4.5 dated 29-August-2023</u>                                                                                                                                             |
| /10/ | <u>VCS: Monitoring report Template VCS Version 4.2</u>                                                                                                                                                 |
| /11/ | <u>CDM: AMS-II.C- Demand-side energy efficiency activities for specific technologies, Version 15.0.</u>                                                                                                |
| /12/ | <u>CDM: AMS-I.D: Grid connected renewable electricity generation; Version 18.0</u>                                                                                                                     |
| /13/ | <u>Methodological tool 19: Demonstration of additionality of microscale project activities Version 09.0</u>                                                                                            |
| /14/ | <u>Methodological tool 21: Demonstration of additionality of small-scale project activities Version 12.0</u>                                                                                           |
| /15/ | <u>CDM: Guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities, Ver. 4.0</u>                                                                                       |
| /16/ | <u>CDM: Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 09.0</u>                                                                                    |
| /17/ | <b>Brightspark Energy Private Limited:</b> Sample copies of end user agreement between PP and end user of all the samples visited during site visit from <b>11-September-2023 to 14-September-2023</b> |
| /18/ | Test Reports for Lamp life certificates of LEDs distributed showing technical specification of LEDs:                                                                                                   |

|      |                                                                                                                                                                                                                                                                                                                                                                             |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <ul style="list-style-type: none"> <li>For 7W the report is given by Planet Electrolabs</li> <li>For 12W the report is given by Classic Instrumentation Pvt. Ltd.</li> </ul>                                                                                                                                                                                                |
| /19/ | <b>Brightspark Energy Private Limited:</b> End user agreement showing the start date of project activity as <b>25-March-2021</b> .                                                                                                                                                                                                                                          |
| /20/ | <b>Auctus E Recycling Solutions Pvt. Ltd: -</b> <ul style="list-style-type: none"> <li>Certificate of ICL Collection and destruction issued by ICL destruction Agency.</li> <li>Certificate of handling over/ taking over of ICLs issued by ICL destruction Agency</li> <li>Inventory list for certificates of handling of ICLs issued by ICL destruction Agency</li> </ul> |
| /21/ | <b>Brightspark Energy Private Limited:</b> User survey <ul style="list-style-type: none"> <li>Sample User Survey Form</li> <li>Sample sale records</li> </ul>                                                                                                                                                                                                               |
| /22/ | VERRA: <a href="https://registry.verra.org/app/projectDetail/VCS/2700">https://registry.verra.org/app/projectDetail/VCS/2700</a>                                                                                                                                                                                                                                            |
| /23/ | <b>Brightspark Energy Private Limited:</b> Project installation database                                                                                                                                                                                                                                                                                                    |
| /24/ | <b>Brightspark Energy Private Limited:</b> Sampling survey Sheet                                                                                                                                                                                                                                                                                                            |
| /25/ | <b>Brightspark Energy Private Limited:</b> Monitoring survey training records                                                                                                                                                                                                                                                                                               |
| /26/ | Monitoring survey agreement between Brightspark Energy Private Limited and CPASS                                                                                                                                                                                                                                                                                            |
| /27/ | Grievance/ Replacement/ Logbook Record on sample basis for current monitoring period from <b>01-June-2022 to 30-June-2023</b> (Inclusive of both start and end dates))                                                                                                                                                                                                      |
| /28/ | <b>Brightspark Energy Private Limited:</b> Screenshot of Public statement and copy of email to avoid double claiming of Scope 3 emissions.                                                                                                                                                                                                                                  |
| /29/ | Site visit Photographs and attendance sheet from <b>11-September-2023 to 14-September-2023</b>                                                                                                                                                                                                                                                                              |
| /30/ | <u>VCS Validation and verification manual version 3.2 dated 19-October-2016</u>                                                                                                                                                                                                                                                                                             |
| /31/ | Gold Standard Foundation: <a href="https://registry.goldstandard.org/projects?q=&amp;page=1">https://registry.goldstandard.org/projects?q=&amp;page=1</a>                                                                                                                                                                                                                   |
| /32/ | <u>CDM Validation &amp; Verification Standard version 3.0 dated 09-September-2021</u>                                                                                                                                                                                                                                                                                       |
| /33/ | <u>VCS Program Definitions version 4.4 dated 29-August-2023</u>                                                                                                                                                                                                                                                                                                             |
| /34/ | <u>GPS map camera (GPS App)</u>                                                                                                                                                                                                                                                                                                                                             |
| /35/ | <u>GPS Google earth pro software used for verification of the Location</u>                                                                                                                                                                                                                                                                                                  |

|      |                                                                                                                                                                                                                                                                               |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /36/ | Interviews conducted onsite from <b>11-September-2023 to 14-September-2023</b> detailed in section 2.3 of this report.as recorded by assessment team of VKU Certification Pvt. Ltd. during onsite visit in a form called as <b>VKU.F46W. Attendance Sheet of Onsite Audit</b> |
| /37/ | Sampling and calculation sheet of Monitoring Period 02 from <b>01-June-2022 to 30-June-2023 (Inclusive of both dates)</b>                                                                                                                                                     |
| /38/ | ICL collection and disposal agreement <b>Brightspark Energy Private Limited</b> and <b>Auctus E Recycling Solutions Pvt. Ltd</b> dated <b>01 -December-2019</b>                                                                                                               |
| /39/ | <b>Brightspark Energy Private Limited: Net Present Value Spreadsheet</b>                                                                                                                                                                                                      |
| /40/ | <b>Brightspark Energy Private Limited: Database Management system (DMS) screenshots</b>                                                                                                                                                                                       |
| /41/ | <b>VKU.62W: Appendix-2 of Field Assessment Checklist for Sample Selected by VVB for Energy Demand &amp; Distribution Projects</b>                                                                                                                                             |
| /42/ | <b>VKU.24W. Onsite Audit and Sampling Plan for Verification Activity version 01 dated 08-September-2023</b>                                                                                                                                                                   |
| /43/ | <b>VKU.F56W.Risk Assessment_ VKU.VER.98.23_VCS_2700</b>                                                                                                                                                                                                                       |
| /44/ | <u>ISO 14064-3:2019: Greenhouse gases — Part 3: Specification with guidance for the verification and validation of greenhouse gas statements</u>                                                                                                                              |
| /45/ | <u>ISO 14065:2020: General principles and requirements for bodies validating and verifying environmental information</u>                                                                                                                                                      |
| /46/ | <u>ISO/IEC 17029:2019: Conformity assessment — General principles and requirements for validation and verification bodies</u>                                                                                                                                                 |
| /47/ | <b>Brightspark Energy Private Limited: Spreadsheet for annual average operating hours</b>                                                                                                                                                                                     |
| /48/ | <b>CDM: Guideline: General guidelines for SSC CDM methodologies Version 22.1</b>                                                                                                                                                                                              |

## 2.3 Interviews

The tables from **Table No.- 06 to Table No.-08** below describes the onsite interview process/29/ and further identifies personnel, including their roles, who were interviewed and/or where personnel responsible for monitoring of the project activity, data collection and management, and QA/QC procedure were interviewed.

The details of the people interviewed during monitoring period are mentioned in the table below as per the **VKU.46W. Attendance sheet signed by PP and other representatives/29/**.

Location: **Uttar Pradesh (East)**

**Table No: 06: Details of Personnel Interview at the site**

| S. No. | Name                    | Gender | Designation                                      | Topic of Discussion                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------|-------------------------|--------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Nishant<br>Ranjan Singh | Male   | CQC -<br>Associate                               | <ul style="list-style-type: none"> <li>Project Design</li> <li>Project Implementation status</li> <li>Project start date and Project Location</li> <li>Baseline Scenario</li> <li>Baseline Identification and Additionality</li> <li>Qualification and Training requirement of the personnels</li> <li>Monitoring and reporting documentation</li> <li>Quality Assurance Management and operating system</li> </ul> |
| 2      | Kishor Kumar<br>Das     | Male   | Sr.<br>Operational<br>Manager -<br>CQC           |                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 3      | Sachin Kumar            | Male   | Area Manager<br>CQC                              |                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 4      | M.Pranay Raj            | Male   | Nirmala<br>Enterprises<br>operational<br>Manager |                                                                                                                                                                                                                                                                                                                                                                                                                     |

**Table no: 07: Details of Personnel Interview/Focussed Group Discussion with Stakeholders**

| S.No. | Name                       | Gender | Category             | Topic of Discussion                                                                                                                                                                                                        |
|-------|----------------------------|--------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Rajesh Prakash<br>Yadav    | Male   | Local<br>Stakeholder | <ul style="list-style-type: none"> <li>Implementation Status, Training to maintain LEDs,</li> <li>Social and Environmental Impacts</li> <li>Local Stakeholders meeting process</li> <li>Benefits of the project</li> </ul> |
| 2     | Dr. Ravi Shankar<br>Pandey | Male   |                      |                                                                                                                                                                                                                            |
| 3     | Moh Vakar                  | Male   |                      |                                                                                                                                                                                                                            |
| 4.    | Sulekha                    | Female |                      |                                                                                                                                                                                                                            |
| 5.    | Shamdhar                   | Male   |                      |                                                                                                                                                                                                                            |
| 6.    | Sudama Pathak              | Male   |                      |                                                                                                                                                                                                                            |
| 7.    | Prem Chand<br>Gupta        | Male   |                      |                                                                                                                                                                                                                            |
| 8.    | Durgesh Pratap<br>Singh    | Male   |                      |                                                                                                                                                                                                                            |

The topics covered during interview ranges from general features and implementation of project to technical details of the project like monitoring and measuring system, data collection,

recording, emergency procedures internal audit, Procedures for handling non-conformances with the validated monitoring plan, personal training and archiving procedures. The assessment was based on the feedback received during onsite interview coupled with the documentation in VKU.F62W. **Field Assessment Checklist for Sample Selected by VVB for Energy Demand & Distribution Projects/41/**

During the onsite visit/36/, the assessment team conducted interviews with local stakeholders involved in the projects to validate the implementation and grievance resolution process, which had been claimed and detailed in the MR/01/ (refer to section 2.2 of MR) by the PP. The assessment team not only confirmed the project's sustainable development claims but also evaluated its socio-economic impact on the local community. Further information on this aspect is available in section 4.1 of this report.

Moreover, the assessment team inspected records and noted that the PP had provided opportunities for local residents to voice their opinions and grievances. They had made efforts to resolve these issues through consultations with stakeholders. To verify these statements, the assessment team engaged in focused group discussions and conducted personal interviews with stakeholders. As a result, it was deemed acceptable by VKU that the PP has a well-defined procedure for involving local stakeholders in project implementation and appropriately resolving their grievances, as summarized in the table no. 07 and table no. 08.

**Table No: 08:** The end users interviewed during site visit are mentioned in the table below.

| S. No. | Date              | Name and DISCOM Service Number of the end-user                                  | Topic                                                                                                                                                                                                                                                |
|--------|-------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | 12-September-2023 | Name –Hari Prasad (Male)<br><br>Discom Service Number–<br>751600065224          | <ul style="list-style-type: none"> <li>• Average annual operating hours of project LEDs (<math>O_i</math> project)</li> <li>• Number of group i project LEDs that are operational during time interval 't' (<math>n_i</math> operational)</li> </ul> |
| 2.     | 12-September-2023 | Name –Ravi Shankar Pandey (Male)<br><br>Discom Service Number–<br>6044604131785 | <ul style="list-style-type: none"> <li>• Average annual operating hours of project LEDs (<math>O_i</math> project)</li> <li>• Number of group i project LEDs that are operational during time interval 't' (<math>n_i</math> operational)</li> </ul> |
| 3.     | 13-September-2023 | Name –Ramesh Prasad (Male)<br><br>Discom Service Number–<br>751744671045        | <ul style="list-style-type: none"> <li>• Average annual operating hours of project LEDs (<math>O_i</math> project)</li> <li>• Number of group i project LEDs that are operational during time interval 't' (<math>n_i</math> operational)</li> </ul> |

|    |                   |                                                                                                         |                                                                                                                                                                                                                                                                   |
|----|-------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. | 14-September-2023 | <b>Name</b> –Shayam Dhar (Male)<br><b>Discom</b> <b>Service</b> <b>Number</b> –<br>8834108153333        | <ul style="list-style-type: none"> <li>• Average annual operating hours of project LEDs (<math>O_i</math> project)</li> <li>• Number of group <math>i</math> project LEDs that are operational during time interval 't' (<math>n_i</math> operational)</li> </ul> |
| 5. | 14-September-2023 | <b>Name</b> – Radeyshyam Pathak (Male)<br><b>Discom</b> <b>Service</b> <b>Number</b> –<br>8722263140697 | <ul style="list-style-type: none"> <li>• Average annual operating hours of project LEDs (<math>O_i</math> project)</li> <li>• Number of group <math>i</math> project LEDs that are operational during time interval 't' (<math>n_i</math> operational)</li> </ul> |

The above stated information regarding the Interview with site personnel/36/ was recorded by VKU's Assessment Team in a form called as **VKU.F46W. Attendance Sheet of Onsite audit/29/** & there were no negative comments received during the stakeholder consultation interview conducted on site and more detail is enlisted in the section 4.2.2 below of this report.

## 2.4 Site Visits

Location- **Uttar Pradesh**

VKU assessment team have conducted an on-site inspection from **11-September-2023 to 14-September-2023** following sampling approach as explained below-

### PP's sampling approach:

PP has proposed simple random sampling plan using 95/10 as confidence/precision. This is in line with the Section 4 para 13 of the applied methodology/11/ and the registered monitoring plan/04/ & /03/. The sample size for each parameter is determined following guidelines- Appendix 1 Section 2.1.1 for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 4.0 (EB86, Annex 4) /16/ and registered monitoring plan/04/& /03/. The monitoring parameter(s) monitored through the sampling plan are:

- $O_i$  project
- $n_i$  operational

### Development of the Verification/Sampling Plan:

The audit team has formally documented its verification/ sampling plan as well as determined the evidence-gathering plan. The verification plan is developed based on key elements of the verification process as per the criteria of engagement. The plan identifies and addresses the following:

- Level of Assurance
- Materiality

- c. Standards of evaluation & reporting for the verification including the assessment criteria
- d. Scope and objectives
- e. Assessment team and the roles of team members
- f. Schedule of verification activities

#### Verification Approaches:

- a. ASP: Acceptance Sampling
- b. SPL: Sampling Approach (all data available)
- c. CDC: Complete data check of data including all data aggregation steps
- d. COM: Full data check at higher data aggregation levels and sampling at original data levels

#### Sampling/Verification Plan-

In order to ensure a complete, transparent and timely execution of the assessment task, the team leader has planned the complete sequence of events necessary to arrive at a substantiated final opinion. Various tools have been established in order to ensure an effective assessment planning.

**Table No.-09; Step 1- Identification of Materiality threshold**

| Check the relevant box against applicable threshold level | Threshold as per Section 4.1.10 of VCS Standard v4.5/09/ | Related to                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/>                       | <b>1%</b>                                                | <p>Quantitative materiality demands that the threshold for materiality with respect to the aggregate of errors, omissions and misrepresentations, individually or in the aggregate, for any reported relative to the total reported GHG emission reductions and/or removals assets shall be limited to two percent.</p> <p>The same was verified from PPs sampling survey /37/ and VVBs acceptance sampling, it was found that the achieved proportion of non-working LEDs is less than the expected, as all the LEDs were found operational hence uncertainty is reduced. Hence, accepted.</p> |

Table No.-10; Step 2- Identification of risks, their level and assessment

| S.No. | Risk that could lead to material errors, omissions or misstatements                                                  | Assessment of the potential risk |                                                                                                                                                                                                                                                                                            | Assessment of the records/information/interview with personnel to check controls/ mitigation measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------|----------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       |                                                                                                                      | Risk level                       | Justification                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 1.    | Monitoring parameters                                                                                                |                                  |                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 1.1   | <p>ni baseline (60W) &amp; (100W)</p> <p>Number of pieces of 60 W and 100 W baseline Incandescent Lamps replaced</p> | High                             | <p>This parameter has high risk due to its use in emission reduction calculation directly and measured ex-post. This is further measured using sampling techniques where the VVB identified 11 samples foreach LED types (7W and 12W; totally 22 LED samples) for current verification</p> | <p>The risk is mitigated by reviewing the MR/01/, ER sheet /02/ and sampling survey sheet/37/ and other supporting documents such as project installation database/23/, Sampling Survey sheet/37/, End-user Agreement/19/, ICL Collection and Destruction Certificates/20/ and Sample survey forms/21/submitted by PP. VKU assessment team also conducted the onsite interviews with the end-users for 22 LED samples to mitigate any risk. The sampling was found appropriate as per the CDM sampling standard para 30 &amp; 31 as well as VKU's internal guidance on sampling. Besides the non-operation of the LEDs based on the sampling plan of VVB was found to be 0 i.e., (1-p). Hence VVB finds the risk to be mitigated to a reasonable degree as much as it is allowed by the CDM standard on sampling.</p> |
| 1.2   | <p>ni baseline scrapped (60 W &amp; 100 W)</p> <p>Number of pieces of 60 W</p>                                       | High                             | <p>This parameter has high risk due to its use in emission</p>                                                                                                                                                                                                                             | <p>The risk is mitigated by reviewing the MR/01/, ER sheet /02/ and sampling survey sheet/37/ and other supporting documents</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|     |                                                                                                                                   |      |                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----|-----------------------------------------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | and 100 W<br>baseline<br>Incandescent<br>Lamps<br>destroyed                                                                       |      | reduction<br>calculation directly<br>and measured ex-<br>post.                                                                                                                                                                                                                                                                           | such as project installation<br>database/23/, Sampling Survey<br>sheet/37/, End-user<br>Agreement/19/, ICL Collection<br>and Destruction<br>Certificates/20/ and Sample<br>survey forms/21/submitted by<br>PP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1.3 | $N_i$ project (7 W, 12 W)<br><br>Number of<br>pieces of 7W,12<br>W project lamps<br>distributed                                   | High | This parameter<br>has high risk due<br>to its use in<br>emission<br>reduction<br>calculation directly<br>and measured ex-<br>post. This is further<br>measured using<br>sampling<br>techniques where<br>the VVB identified<br>11 samples for<br>each LED types<br>(7W and 12W;<br>totally 22 LED<br>samples) for<br>current verification | The risk is mitigated by reviewing<br>the MR/01/, ER sheet /02/ and<br>sampling survey sheet/37/ and<br>other supporting documents<br>such as project installation<br>database/23/, Sampling Survey<br>sheet/37/, End-user<br>Agreement/19/, technical<br>specification and life test report<br>of LEDs/18/ and Sample survey<br>forms/21/submitted by PP. to<br>mitigate any risk. The sampling<br>was found appropriate as per<br>the CDM sampling standards<br>para 30 & 31 as well as VKU's<br>internal guidance on sampling.<br>Besides the non-operation of the<br>LEDs based on the sampling<br>plan of VVB was found to be 0<br>i.e., (1-p). Hence VVB finds the<br>risk to be mitigated to a<br>reasonable degree as much as it<br>is allowed by the CDM standard<br>on sampling. |
| 1.4 | $N_i$ , operational (7W, 12<br>W)<br><br>Total number of<br>7W, 12 W<br>project lamps<br>that are<br>operational<br>during time t | High | This parameter<br>has high risk due<br>to its use in<br>emission<br>reduction<br>calculation directly<br>and measured ex-<br>post. This is further                                                                                                                                                                                       | The risk is mitigated by reviewing<br>the MR/01/, ER sheet /02/ and<br>sampling survey sheet/37/ and<br>other supporting documents<br>such as project installation<br>database/23/, Sampling Survey<br>sheet/37/, End-user<br>Agreement/19/ and Sample                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|     |                                                                                              |      |                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----|----------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                                                                              |      | measured using sampling techniques where the VVB identified 11 samples for each LED types (7W and 12W; totally 22 LED samples) for current verification                                       | survey forms/21/submitted by PP. to mitigate any risk. The sampling was found appropriate as per the CDM sampling standard para 30 & 31 as well as VKU's internal guidance on sampling. Besides the non-operation of the LEDs based on the sampling plan of VVB was found to be 0 i.e., (1-p). Hence VVB finds the risk to be mitigated to a reasonable degree as much as it is allowed by the CDM standard on sampling. |
| 1.5 | $P_i$ (baseline 60 W, 100 W)<br><b>Rated power of 60 W and 100 W baseline lamps replaced</b> | High | This parameter has high risk due to its use in emission reduction calculation directly and measured ex-post.                                                                                  | The risk is mitigated by reviewing the MR/01/, ER sheet /02/ and sampling survey sheet/37/ and other supporting documents such as project installation database/23/, Sampling Survey sheet/37/, End-user Agreement/19/, Screenshot of DMS/43/ and Sample survey forms/21/ submitted by PP.                                                                                                                               |
| 1.6 | $P_i$ (project 7W, 12W)<br><b>Rated power of 7W,12W project LEDs (Watts)</b>                 | High | This parameter has high level of risk as PP has used the rated power of LEDs at the time of distribution and data was collected via smart phone or tablet app module connected to data cloud. | The risk is mitigated by reviewing the MR/01/, ER sheet /02/ and sampling survey sheet/37/ and other supporting documents such as project installation database/23/, Sampling Survey sheet/37/, End-user Agreement/19/, Screenshot of DMS/43/ and Sample survey forms/21/ submitted by PP.                                                                                                                               |
| 1.7 | <b>Ly</b>                                                                                    | Low  | This parameter has low level of risk as PP has                                                                                                                                                | The risk is mitigated by reviewing the MR/01/, ER sheet /02/ and sampling survey sheet/37/ and                                                                                                                                                                                                                                                                                                                           |

|     |                                                                                                                             |      |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                      |
|-----|-----------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | Average annual technical grid losses                                                                                        |      | used the 10% value as per the methodology which is used in of baseline and project emission reduction calculation which is measured ex-post. This is further confirmed by VVB through applied methodology/11/                                                                                               | other supporting documents such as project installation database/23/, Sampling Survey sheet/37/and applied methodology/11/ submitted by PP.                                                                                                                                                                          |
| 1.8 | <p>oi project (7W)/(12W) /baseline (60W)/(100W)</p> <p>Average annual operating hours of type 'i' project/baseline lamp</p> | Low  | This parameter has low risk as it is estimated once during baseline survey and used in calculation of baseline and project emission reduction calculation which is measured ex-post. This is further confirmed by VVB through verification of the Average annual operating hours sheet /24/ submitted by PP | The risk is mitigated by reviewing the MR/01/, ER sheet /02/ and sampling survey sheet/37/ and other supporting documents such as project installation database/23/, Sampling Survey sheet/37/, End-user Agreement/19/, ICL Collection and destruction certificates/20/ and Sample survey forms/21/ submitted by PP. |
| 2.  | Project design: Information on project design without adequate controls related to data, evidences                          | High | Project design incorrectly described thus leading to incorrect delineation of the baseline scenario, causal change,                                                                                                                                                                                         | The risk is mitigated by reviewing the claims in the VCS PD/04/ and CDM-CPA-DD/03/ and its assessment based on VCS requirements. The background documents including monitoring survey sheet/37/shall be cross-checked with the project specific                                                                      |

|    | (project/sector related)                                               |        | threats to the project                                                                         | evidence, and interviews/36/ with the related stakeholders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----|------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. | Accuracy of the monitoring survey                                      | Medium | Inadequately delineated monitoring plan may lead non-compliance of the VCS principle           | The risk due to accuracy of the monitoring plan is ensured by reviewing the VCS PD/04/ and CDM-CPA-DD/03/, VCS requirements, sampling tool applied and ensuring feasibility/appropriateness of the monitoring plan by means of onsite interviews with the PP/37/, their associates and the end users. In case if the precision levels achieved in the 22 LED samples identified are higher than the desired precision levels, then the risk associated with this is mitigated as per the provisions of the sampling standards. The discounting of ER will happen as per para 18 (b) (i) (a)-(b) of the sampling standards wherein for every %age of precision level higher than the desired precision levels 3% of the ERs will be deducted. This is done as a corrective measure. For example, for the required 90/10 CI/precision level, if the samples precision achieved is 90/11, then the corresponding ER will be discounted by 3%. |
| 4. | Competence of personnel involved in conducting monitoring like surveys | Medium | Interview of the personnel involved and check the training records conducting such monitoring. | The risk is mitigated by reviewing the training records/25/ of the personnel involved in the conducting such surveys and by following the monitoring responsibilities. The training records will be reviewed which                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|  |  |  |  |                                                       |
|--|--|--|--|-------------------------------------------------------|
|  |  |  |  | will can also be confirmed during the interviews/37/. |
|--|--|--|--|-------------------------------------------------------|

### Sampling Plan

Where, due to the number of project activity instances, it is unreasonable to undertake an individual assessment of each instance, the validation/verification body shall document and explain the sampling methods employed for the verification of instances. Such sampling methods shall be statistically sound. The number of instances included in the project, eligible for monitoring and generation of VCU's shall be proportional to the percentage of sampled instances found to be in compliance by the VVB.

|                                     |                                                                                                                                                                                                                                                                                 |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/>            | No sampling approach has been used by the VVB to verify the project's compliance with SD Vista requirements.                                                                                                                                                                    |
| <input checked="" type="checkbox"/> | Acceptance sampling approach has been applied by the VVB to verify the project's compliance with VCS requirements for the aspects derived in step 2 above. The statistical approach of sample size (i.e., 11 for each type of LED i.e., 22 LEDs) calculation is provided below. |

VVB has applied an acceptable sampling approach for the onsite interviews as part of assessment in accordance with the paragraph 26 of the Standard: Sampling and surveys for CDM project activities and programmes of activities, Version 09.0/16/. In accordance with the sampling standard, acceptance sampling has been chosen by the verification team. Verification team has opted for **AQL of 0.5 %** is chosen as per the previous approved verification report and same approach was found acceptable as per **Para 30 (a)** of CDM Standard/16/and same level of AQL is applied in current verification as similar projects of Brightspark Energy Pvt. Ltd. of similar nature were assessed by same verification team and very less risk was found as the data trail was appropriate and well-established procedure was found, hence **AQL of 0.5% is appropriate**. **UQL of 20%** is chosen as per the confidence interval/precision adopted by the PP for determining their samples. As per professional judgment of verification team as per **Para 30 (b)** of CDM Standard/16/ and the previous approved verification report, the maximum UQL value of 10% is applied, which is found to be most appropriate approach for this grouped project activity, hence the same was used. The **producer risk of 10%** and **consumer risk of 10%** is chosen maintaining the similar approach in the current verification which is also in line with the approach as per Para 30 (a) and Para 30 (b) respectively of CDM Standard/16/.

Hence, VVB has chosen Sample size (n) = 11 (11 LEDs of each type :7W and 12W; Total 22 LEDs) with acceptance number (c) as 0 is chosen as per the sampling table given above as recommended by the sampling standards. Wherein, **Producer risk is 10%** and **Consumer risk is 10%**. **AQL = 0.5%** and **UQL = 20%** which is in line with paragraph 32 & 33 of the standard **VVB's** selected sample size of 11 (11 LEDs of each type; 7W and 12W, Total = 22 LEDs) with acceptance number (c) as 0

| Producer Risk |     | 5%              |                       | 5%              |                       | 5%              |                       | 5%              |                       |
|---------------|-----|-----------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|
| Consumer Risk |     | 5%              |                       | 10%             |                       | 15%             |                       | 20%             |                       |
| AQL           | UQL | Sample Size (n) | Acceptance Number (c) | Sample Size (n) | Acceptance Number (c) | Sample Size (n) | Acceptance Number (c) | Sample Size (n) | Acceptance Number (c) |
| 0.5%          | 10% | 46              | 1                     | 38              | 1                     | 33              | 1                     | 29              | 1                     |
| 0.5%          | 15% | 30              | 1                     | 25              | 1                     | 22              | 1                     | 10              | 0                     |
| 0.5%          | 20% | 22              | 1                     | 18              | 1                     | 9               | 0                     | 8               | 0                     |
| 1.0%          | 10% | 61              | 2                     | 52              | 2                     | 33              | 1                     | 29              | 1                     |
| 1.0%          | 15% | 30              | 1                     | 25              | 1                     | 22              | 1                     | 19              | 1                     |
| 1.0%          | 20% | 22              | 1                     | 18              | 1                     | 16              | 1                     | 14              | 1                     |
| Producer Risk |     | 10%             |                       | 10%             |                       | 10%             |                       | 10%             |                       |
| Consumer Risk |     | 5%              |                       | 10%             |                       | 15%             |                       | 20%             |                       |
| AQL           | UQL | Sample Size (n) | Acceptance Number (c) | Sample Size (n) | Acceptance Number (c) | Sample Size (n) | Acceptance Number (c) | Sample Size (n) | Acceptance Number (c) |
| 0.5%          | 10% | 46              | 1                     | 38              | 1                     | 19              | 0                     | 16              | 0                     |
| 0.5%          | 15% | 19              | 0                     | 15              | 0                     | 12              | 0                     | 10              | 0                     |
| 0.5%          | 20% | 14              | 0                     | 11              | 0                     | 9               | 0                     | 8               | 0                     |
| 1.0%          | 10% | 46              | 1                     | 38              | 1                     | 33              | 1                     | 29              | 1                     |
| 1.0%          | 15% | 30              | 1                     | 25              | 1                     | 22              | 1                     | 10              | 0                     |
| 1.0%          | 20% | 22              | 1                     | 18              | 1                     | 9               | 0                     | 8               | 0                     |

Verification team based on its professional judgement explained above and observation during acceptance sampling, derived its assessment including conclusions as discussed later in the following section of this report. The verification team selected 11 LEDs samples of each type from the PP's sample list for each LED type separately by using random number generator thus random samples from PP's sample list/37/ were selected. The LED details (Date of installation, type of LED, DISCOM Service number, name of user and address) were checked and found to be consistent with that reported in the installation database. No inconsistency was observed for any of the 11 samples (**11 LEDs of each type; 7W and 12W, Total = 22 LEDs**) with respect to on-site inspection & document review. This assessment of the selected samples was done to ascertain the implementation status of the grouped project activity with the LED types, serial number, location, operation etc. of LED

## 2.5 Resolution of Findings

The objective of this phase of the verification is to resolve any outstanding issues which need to be clarified for VKU's positive conclusion on the project description. To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three tables; the different columns in these tables are described below.

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

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project proponents.

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

A forward action request (**FAR**) is also raised in cases where any required deviation/information is not fulfilled in current verification and thus needs to be taken up in consequent verification for better transparency thus holding the applicability of the methodology eligible to the project activity and there is no impact of the same on additionality, baseline scenario & emission reduction calculation of project.

In summary, **03 CL, 03 CARs** and **00 FAR** were raised during this verification which were closed successfully and details are given under **Appendix B** of this report.

### 2.5.1 Forward Action Requests

Based on the review of the verification report for the first monitoring period /06/, no FAR found raised which needs to be closed during this verification. no FAR has been raised during current verification.

## 2.6 Eligibility for Validation Activities

VKU has not undertaken any validation activities as part of the verification and does not hold accreditation for validation of any relevant sectoral scope Hence this section is not applicable. It is to further conclude that during current verification there is no validation assessment undertaken either by VKU itself or parallelly by other certification bodies, as there was no distribution of LEDs happened in current monitoring period, thus no PAI validation activity was required to be performed by VVB as per clause 4.1.29 of VCS Standard version 4.5/09/. This was confirmed with focussed group discussions and interview with the PP /36/ during site visit/29/. Assessment team assessed the VERRA's website on **20-December-2023**: <https://verra.org/validation-verification/vku-certification-pvt-ltd/#vcs> wherein the scope of services of VKU certification Pvt. Ltd. is mentioned as verification and not validation. Thus, ensuring that the accreditation details mentioned in FVR is consistent and correct

## 3 VALIDATION FINDINGS

### 3.1 Participation under Other GHG Programs

The project has not applied under any other GHG program except VCS for the current monitoring period from **01-June-2022 to 30-June-2023** (inclusive of both dates). The project is registered under VCS with project ID: 2700 and under CDM with registration ID CDM-CPA-DD/03/ 10484-P1-0006-CP1 . However, no CERs were claimed as confirmed from the CDM project webpage. This was confirmed by checking VERRA registry website and CDM registry website and similar exercise was performed for GS/GCC/UCR registries with similar project title/capacity and Project Proponents but the assessment team was not able to trace any such project registered under any of the above stated registries or under any other similar mechanisms except

CDM. This was supported from the declaration/07/ submitted by PP in which they claimed that same GHG emission reductions of the project from VCS for the current monitoring period will not be claimed under other registries except VCS. Similar exercise of independently searching for such project registration or claim for current monitoring period was performed for other GHG related benefits such as REC and I-REC benefits and based on both independent assessments, the assessment team accepted the claim that there is no double counting from this project activity for current monitoring period. Thus, ensuring emission reduction generated from the project activity will not be double counted hence accepted by the assessment team. The details of the registries checked are as follows:

- 1) <https://www.recregistryindia.nic.in/>
- 2) <http://cdm.unfccc.int/>
- 3) <http://www.goldstandard.org/>
- 4) <https://verra.org/verra-standards-and-programs/>
- 5) <https://www.irecstandard.org/>
- 6) <https://cri.nccf.in/>
- 7) [International Carbon Registry](#)
- 8) [GCC Projects Portal](#)
- 9) [VCU Issuance record](#)

### Rejection by other GHG programs

The Project is not rejected by other GHG programs. A declaration/07/ for the same is checked and found correct by the assessment team. Also, assessment team independently verified with the following registries and checked projects from the PP matching the same project design and found that no such project either exists or were rejected by the registries. The details of the registries checked are as follows:

- 1) <https://www.recregistryindia.nic.in/>
- 2) <http://cdm.unfccc.int/>
- 3) <http://www.goldstandard.org/>
- 4) <https://verra.org/verra-standards-and-programs/>.
- 5) <https://www.irecstandard.org/>
- 6) <https://cri.nccf.in/>
- 7) [International Carbon Registry](#)
- 8) [GCC Projects Portal](#)

Hence, based on the aforementioned statements, it can be concluded that the project meets the requirements to participate in the VCS Program

## 3.2 Methodology Deviations

There is no methodology deviation identified during the current monitoring period. Also, there were no methodology deviations identified during the validation /05/ and previous verification/06/

## 3.3 Project Description Deviations

There is no project description deviation identified during the current monitoring period. No deviation was involved in previous validation/05/and verification/06/. The assessment team confirms the same by checking the project webpage/22/.

## 3.4 Grouped Project

This project is a grouped project which involves the distribution of energy efficient LEDs project to grid connected households located in the western Uttar Pradesh. A total of **4,634,219** LEDs were disseminated by the end of the previous monitoring period and **4,562,531** LEDs were operational in the current monitoring period as verified from the Project installation database/23/ and ER calculation sheet/02/. The lower number of LEDs operational number is

calculated by PP in the sampling survey sheet/37/ submitted to VVB and calculation is found consistent as per the sample survey results. Hence total **4,562,531** were operational in 928,699 grid connected households in the state of Uttar Pradesh (east) till the end of current second monitoring period under VCS and no other LED has been distributed to any household in the current monitoring period as last LED was distributed on **01-May-2022** thus there is no need to assess any PAI in the grouped project activity as per clause **4.1.29 of** the VCS standard requirement hence the assessment of grouped project activity instances is not included in current verification.

## 4 VERIFICATION FINDINGS

### 4.1 Project Implementation Status

The grouped project, “**SHINE- Distribution of LED Lightbulbs in India -6**” is a LED distribution project with project ID **VCS 2700** applying the methodology AMS-II.C- Demand-side energy efficiency activities for specific technologies, Version 15.0 /11/. This is the second periodic verification for the grouped project activity. The grouped project involves distribution of Light Emitting Diodes (LEDs) for domestic lighting in Eastern Uttar Pradesh. Thus, under this grouped project, **60W ICL** have been replaced with **7W LED** and **100W ICL** with **12W LED** as the lumen output is within the specified limit as per applied methodology/11/ mentioned in section 1.4 of this report above. Each household has received maximum five LEDs under this grouped project activity and minimum of one, hence total **4,634,219 LEDs** have been distributed out of which **4,562,531 LEDs** are operational in **928,699** grid connected households in the state of **Uttar Pradesh (east)**. **4,634,219 LEDs** were distributed till the end of the first monitoring period under VCS which covers monitoring period from **01-June-2022 to 30-June-2023** (Inclusive of both start and end dates). The last LED was distributed on **01-May-2022** as verified by assessment team in Project installation database/23/ and ER sheet/02/ submitted by PP.

No further distribution of LEDs has been carried out or planned by PP after 01-May-2022 under this grouped project activity. The start date for the grouped project is **25-March-2021** which is the date when the first energy efficient LED has been distributed as per MR/01/ section 1.5 and the installation database/23/ and ER sheet/02/ submitted by PP.

**Table No. 11; The relevant implementation dates for the Grouped project activity under VCS**

|                                    |               |                                                                                            |                                                                                                                                                                                                             |
|------------------------------------|---------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of first LED installed</b> | 25-March-2021 | A total of 335 LEDs of 12 W were distributed on 25-March-2021 in Varanasi.                 | The date of first LED distribution is confirmed by assessment team through the project installation database/23/ and further cross verified through the End-user Agreement/19/ and Sample survey forms/21/. |
| <b>Date of last LED installed</b>  | 01-May-2022   | A total of 65 LEDs of 12 W were distributed on 01-May-2022 in Sitapur, Basti and Bareilly. | The date of last LED distribution is confirmed by assessment team through the project installation database/23/ and further cross verified through the End-user Agreement/19/                               |

|                                                                                                      |                                                        |                                                                              |                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                      |                                                        |                                                                              | and Sample survey forms/21/.                                                                                                                                                                                                                                                                                         |
| <b>First ex post VCS Monitoring Survey dates<sup>1</sup></b>                                         | 07-July-2022 to 11-July-2022                           | Not Applicable                                                               | This was confirmed by assessment team through the monitoring survey/37/ document was provided by PP to confirm the dates and sampling survey performed for the selected samples.                                                                                                                                     |
| <b>1<sup>st</sup> Monitoring Period under VCS for which VCU issuance has been received under VCS</b> | 25-March-2021 to 31-May-2022 (inclusive of both dates) | A total of 4,634,219 were installed till 01-May-2022 in Uttar Pradesh(east)  | This was confirmed by assessment team through the previous approved <u>monitoring report</u> for MP 1 and <u>Verification Report</u> for first MP uploaded on project webpage and further cross verified with the project installation database/23/ and ER sheet /02/ submitted by PP for current monitoring period, |
| <b>2nd Monitoring Period under VCS</b>                                                               | 01-June-2022 to 30-June-2023 (inclusive of both dates) | No LED distribution has been carried out under the second monitoring period. | This was confirmed by assessment team through the project installation database/23/ and further cross verified through the ER sheet /02/ submitted by PP for current monitoring period, End-user Agreement/19/ and Sample survey forms/21/.                                                                          |

<sup>1</sup> As per the monitoring requirement under the applied methodology, n<sub>i</sub> operational is required to be monitored annually. Therefore, first VCS Monitoring survey results are also applicable for the current monitoring cycle.

The verification team confirms that there is no change in the grouped project activity from the registered VCS PD/04/ and CDM-CPA-DD/03/of the physical features which may impact the emission reductions of the project activity. This has been confirmed based on the review of project installation database /23/, monitoring survey forms /21/ and end user agreements /19/, conducting interviews with representatives of PP as well as by carrying out onsite visit interviews with end users/36/. Thus, the verification team concludes that all the structures of the CDM POA as defined in CDM-CPA-DD/03/ and registered VCS PD /04/ are in place as defined in these documents.

The verification team confirms that during the current monitoring period **from 01-June-2022 to 30-June-2023** (Inclusive of both start and end dates) the grouped project activity has distributed **4,634,219 LEDs where the operational LEDs were 4,562,531**. This was confirmed based on the review of project installation database /23/, monitoring survey forms /21/ and end user agreements /19 and further based on interviews with representatives of PP through onsite visit interviews/36/.

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 crosschecked with the sales records stored and confirmation that all 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/04/ and CDM-CPA-DD/03/.
- The registered VCS PD/04/ and CDM-CPA-DD/03/ clearly describes the monitoring plan and responsibility of monitoring and maintenance which is done by PP.

VKU verification team verified 22 samples (**11 LEDs of each type;7W and 12W, Total = 22 LEDs**) which is required number of samples as explained in section 2.4 above to ascertain accuracy of information. VKU confirms that the project **LEDs** are operating in all samples interviewed/36/, and each LEDs has unique identification number (ID)-DISCOM Service number which has been provided in the end user agreement/19/ and it is consistent as per project installation database/23/. Along with the serial numbers, LED types, end user name, address, installation date, location etc. had also been noted which were found to be consistent on ground during the site visit/36/ with the sampling survey sheet /21/ and project installation database/23/ submitted.

Table No. 12: Wattage wise LEDs' actual distribution figures under VCS 2700

| Year        | 7 W       | 12 W      | Total LED distributed |
|-------------|-----------|-----------|-----------------------|
| 2021        | 648,374   | 1,927,473 | 2,575,847             |
| 2022        | 822,535   | 1,235,837 | 2,058,372             |
| Grand Total | 1,470,909 | 3,163,310 | 4,634,219             |

Table No.13 Year wise LED 's actual distribution figures under VCS 2700

| S. No. | Districts  | 7W      | 12W     | Total LEDs distributed | No. of Households received the LEDs |
|--------|------------|---------|---------|------------------------|-------------------------------------|
| 1      | Amethi     | 5,553   | 7,011   | 12,564                 | 2,523                               |
| 2      | Azamgarh   | 24,723  | 3,403   | 28,126                 | 5,628                               |
| 3      | Badaun     | 25,863  | 33,772  | 59,635                 | 11,931                              |
| 4      | Bahraich   | 32,935  | 21,358  | 54,293                 | 10,863                              |
| 5      | Ballia     | 44,977  | 94,344  | 139,321                | 27,908                              |
| 6      | Barabanki  | 34,315  | 127,577 | 161,892                | 32,396                              |
| 7      | Bareilly   | 77,642  | 204,330 | 281,972                | 56,441                              |
| 8      | Basti      | 28,284  | 98,191  | 126,475                | 25,311                              |
| 9      | Bhadohi    | 22,240  | 70,101  | 92,341                 | 18,515                              |
| 10     | Chandauli  | 33,207  | 46,054  | 79,261                 | 15,891                              |
| 11     | Deoria     | 30,690  | 172,058 | 202,748                | 40,572                              |
| 12     | Faizabad   | 6,016   | 6,936   | 12,952                 | 2,591                               |
| 13     | Fatehpur   | 5,476   | 35,643  | 41,119                 | 8,231                               |
| 14     | Ghazipur   | 69,335  | 226,204 | 295,539                | 59,252                              |
| 15     | Gonda      | 15,851  | 57,219  | 73,070                 | 14,634                              |
| 16     | Gorakhpur  | 49,980  | 175,167 | 225,147                | 45,061                              |
| 17     | Hardoi     | 54,040  | 108,955 | 162,995                | 32,609                              |
| 18     | Jaunpur    | 141,940 | 244,646 | 386,586                | 77,402                              |
| 19     | Kaushambi  | 32,533  | 58,740  | 91,273                 | 18,327                              |
| 20     | Kushinagar | 69,405  | 177,888 | 247,293                | 49,536                              |

|    |                    |                  |                  |                  |                |
|----|--------------------|------------------|------------------|------------------|----------------|
| 21 | Lakhimpur Kheri    | 58,682           | 71,741           | 130,423          | 26,116         |
| 22 | Lucknow            | 51,828           | 99,119           | 150,947          | 30,213         |
| 23 | Maharajganj        | 24,241           | 29,687           | 53,928           | 10,795         |
| 24 | Mau                | 29,498           | 64,763           | 94,261           | 18,873         |
| 25 | Mirzapur           | 11,877           | 37,706           | 49,583           | 9,932          |
| 26 | Pilibhit           | 19,274           | 61,308           | 80,582           | 16,137         |
| 27 | Pratapgarh         | 36,270           | 93,285           | 129,555          | 25,972         |
| 28 | Prayagraj          | 51,632           | 84,743           | 136,375          | 27,356         |
| 29 | Rae Bareli         | 19,335           | 33,917           | 53,252           | 10,657         |
| 30 | Sant Kabir Nagar   | 5                | 30               | 35               | 7              |
| 31 | Shajhanpur         | 44,282           | 47,681           | 91,963           | 18,472         |
| 32 | Shravasti          | 6,347            | 5,670            | 12,017           | 2,408          |
| 33 | Siddharth Nagar    | 0                | 3,498            | 3,498            | 703            |
| 34 | Sitapur            | 39,274           | 105,063          | 144,337          | 28,914         |
| 35 | Sonbhadra          | 46,790           | 22,409           | 69,199           | 13,898         |
| 36 | Sultanpur          | 1,995            | 2,127            | 4,122            | 828            |
| 37 | Unnao              | 42,040           | 131,021          | 173,061          | 34,662         |
| 38 | Varanasi           | 182,534          | 299,945          | 482,479          | 97,134         |
|    | <b>Grand Total</b> | <b>1,470,909</b> | <b>3,163,310</b> | <b>4,634,219</b> | <b>928,699</b> |

During the current monitoring period, no incident or event occurred, that could affect GHG emissions reduction and implementation of the approved monitoring plan.

#### Specifications of LED Lamps –

The technical Specification of two types of LEDs distributed is mentioned in the tables below from **Table No.14 to Table No.15** and it was verified by the assessment team through the technical specification record from the life test reports of LEDs /18/ submitted by PP and during onsite visit, assessment team confirmed it physically with the help of visual inspection of each LED bulb at site/36/.



**Image of LED Bulb with Shine LOGO**

**Table no. 14; Showing Technical specification of 7W LED Bulb**

| Technical Specification of 7W LED bulb as per the technical specification report submitted by PP/18/ |                      |
|------------------------------------------------------------------------------------------------------|----------------------|
| Rated Wattage                                                                                        | 7 W                  |
| Working Voltage                                                                                      | 220-240 V, 50 Hz     |
| Colour Temperature                                                                                   | 5700 K - 6500 K      |
| Initial Lumen                                                                                        | 740 lm               |
| Service level as compared to baseline lamp of 60W (715 lm as per methodology)                        | 103% of lumen output |
| CRI                                                                                                  | >80                  |
| Power Factor                                                                                         | 0.90                 |
| Average Life                                                                                         | 25,000 hrs           |
| BIS compliant as per IS 16102 (Part 2): 2012                                                         | Yes                  |

**Table no. 15; Showing Technical specification of 12W LED Bulb**

| Technical Specification of 12W LED bulb as per the technical specification report submitted by PP/18/ |                     |
|-------------------------------------------------------------------------------------------------------|---------------------|
| Rated Wattage                                                                                         | 12 W                |
| Working Voltage                                                                                       | 230 V               |
| Colour Temperature                                                                                    | 6000 K - 7000 K     |
| Initial Lumen                                                                                         | 1340 lm             |
| Service level as compared to baseline lamp of 100W (1350lm as per methodology)                        | 99% of lumen output |
| Power Factor                                                                                          | 0.90                |
| Average Life                                                                                          | 25,000 hrs          |
| BIS compliant as per IS 16102 (Part 2): 2012                                                          | Yes                 |

It is noted that no changes have been observed or identified during the onsite visit which may impact the additionality, no addition of component nor extension of technology, no addition nor removal of project sites, no change of values of the actual operational parameter relevant to determination of emission reductions which are within the control of the PP; no change has been observed or identified that may impact the scale of the grouped project activity or applicability of baseline and monitoring methodology AMS-II.C, Version 15.0 /11/

All the ex-ante parameters which are used in the calculation of emission reductions are consistent with the CDM-CPA-DD/03/. It is confirmed that ex-ante parameters mentioned in section 4.1 of the MR /01/ are in line with the parameters mentioned in VCS PD/04/ and CDM-CPA-DD/03/. All the ex-post parameters have been monitored as per the monitoring plan and presented in section 4.2 of the MR /01/.

**Assessment team concludes the following:**

- There are no material discrepancies between project implementation and the project description found in current monitoring period.
- The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling and analyzing the monitored data and parameters) is appropriate.
- There are no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology/11/.
- The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation/05/.
- The GHG emission reductions or removals generated by the project have not been included in any emissions trading program or any other mechanism that includes GHG allowance trading/07/.
- The assessment team confirms that PP have mentioned in section 1.10 of MR; according to the guideline of the VCS Standard, version 4.5/09/, the “producer(s) or retailer(s) of the impacted good or service are known but not involved in the project or do not have a website”. PP has informed the distribution agent that the Verified Carbon Units (VCUs) may be issued for the greenhouse gas emission reductions and removals under this grouped project. For these VCUs, the PP will be claiming carbon credits under VERRA. Evidence of the email and public statement has been submitted by PP for current verification of the project. The Email screenshot is provided in **Appendix D** of this report which confirms that PP have communicated to supplier to avoid the double counting of emission reductions.

- The project is registered under CDM and validated by Carbon Check (India) Private Limited. Then project got registered under VERRA on **29-November-2022** and validated by Carbon Check (India) Private Limited since then project is getting credits from VCS and no double counting has been observed as seen from audit history assessment by assessment team and Table-2 provided in MR/01/. Currently the project is undergoing second verification from **01-June-2022 to 30-June-2023** (both dates included).
- The grouped project activity complies with three indicators for sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India as discussed under section 1.11 of MR /01/. Assessment team has verified the same during on site visit/36/ and found all the indicators to be effective and applicable for the grouped project activity. SDG Indicators taken by PP are following and **PP is considering the contributions over project lifetime are equivalent to the project contribution in the second monitoring period only** since SDG contributions from MP-1 (25-March-2021 to 31-May-2022 (inclusive of both dates)) were not included in previously approved monitoring report -
  - ✓ **7.1.2 i.e. (Proportion of population with primary reliance on clean fuels and technology)** Completed one-to-one replacement of ICLs with 4,634,219 energy efficient LEDs where the operational LEDs were 4,562,531 in 928,699 grid connected households located in Uttar Pradesh (east) in the second monitoring period of the project. The 4,562,531 project LEDs are operational during the current second monitoring period, further confirmed through monitoring survey/24/ and this contributed to providing access to affordable, reliable, and sustainable modern energy in 928,699 grid connected households located in Uttar Pradesh (east) over the project lifecycle
  - ✓ **12.5. i.e. (Volume of ICL generated);** Approximately waste generation of 3 failed ICL is estimated to be reduced by use of 1 LED per grid connected household over the second monitoring period. Contributed to reducing waste generation of approximately 13,687,593 ICLs under the second monitoring period by distribution of LEDs. This has been confirmed by assessment team through the calculation provided by PP in Appendix-C of MR/01/.
  - ✓ **13.0 i.e. (Tonnes of greenhouse gas emissions avoided or removed)** Due to installation of this project activity, PP has prevented the release of 1,217,095 tCO<sub>2e</sub> emissions in the current monitoring period into the atmosphere which is the contribution over project lifetime. Assessment team verified the emissions reductions for the project through ER spreadsheet/02/ and MR/01/ and found this to be acceptable.

Table No. 16: Audit History Table

| Audit type          | Monitoring Period Dates (Inclusive of both start and end dates)                                | Program | Numbers of Years                        | VVB Name                              | VCUs Issued                 | Conclusion                                                                                                                                                                                                                                                                                                                                |
|---------------------|------------------------------------------------------------------------------------------------|---------|-----------------------------------------|---------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Validation          | <u>10-April-2021</u><br>(Date of CPA inclusion)                                                | CDM     | 7 years<br>(renewable crediting period) | Carbon Check (India) Private Limited  | N/A                         | VKU assessment team verified the <u>CDM validation report</u> available on <u>CDM project webpage</u> and found the details to be correct.                                                                                                                                                                                                |
| Validation          | 28-October-2022 (Date of FVR)                                                                  | VCS     | 10 years<br>(fixed crediting period)    | Carbon Check (India) Private Limited  | N/A                         | VKU assessment team verified the <u>validation report</u> available on project webpage and found the details to be correct.                                                                                                                                                                                                               |
| First Verification  | 25-March-2021 to 31-May-2022 (First and last date included)                                    | VCS     | 1 year 5 months                         | Carbon Check (India) Private Limited. | 538,063 tCO <sub>2e</sub>   | VKU's assessment team has conducted a cross-verification of the emission reductions reported in the <u>monitoring report</u> for MP 1 with the previous MR and <u>Verification Report</u> for first MP. Additionally, the issuance of VCUs was cross-verified with the VCU's issuance record link available on the project's web page/19/ |
| Second Verification | 01-June-2022 to 30-June-2023 (First and last date included)<br><br>(Current Monitoring period) | VCS     | 1 year 1 months                         | VKU Certification Private Limited     | 1,217,097 tCO <sub>2e</sub> | VKU assessment team conducted the verification for current monitoring period (second MP) and verified the emission reductions reported in the ER Sheet/02/ and MR/01/ via supporting documents.                                                                                                                                           |

|              |                                                              |     |                              |     |                              |                                                                                                                                                                                                                    |
|--------------|--------------------------------------------------------------|-----|------------------------------|-----|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Total</b> | 25-March-2021 to 30-June-2023 (First and last date included) | VCS | 2 years 6 months (Under VCS) | N/A | 17,55,160 tCO <sub>2</sub> e | The Total emission Reduction prevented by the project activity since commissioning was verified by VKU's Assessment team via previous verification report uploaded on VERRA webpage and other supporting documents |
|--------------|--------------------------------------------------------------|-----|------------------------------|-----|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

In view of the information as verified above the assessment team is able to conclude that the grouped project has been implemented as described in the registered VCS PD/04/ and CDM-CPA-DD/03/, All the above stated information was verified by VVB during onsite visit/35/ and site personnel interviews /28/ and found to be acceptable.

## 4.2 Safeguards

### 4.2.1 No Net Harm

Under this grouped project, grid connected households, were provided with highly subsidized LEDs as a replacement of the ICLs or fluorescent lamps, thereby leading to reduction in GHG emissions through avoided use of fossil fuels ensuing from reduced consumption of electricity. In addition to reduced GHG emissions, the program will also result in reduced waste generation as LEDs last 25-50 times longer than the ICLs and do not contain toxic mercury as is the case with compact fluorescent lamp.

Further, PP has ensured proper collection and scientific disposal of baseline ICLs that are eligible to be replaced under the grouped project leading to effective management of hazardous wastes. The replaced ICLs from the LED recipient households were stored in boxes according to their wattage and clearly labelled. These boxes were then transferred to centrally designated storage facilities. PP has an agreement with the waste disposal agency for the safe destruction of the collected ICLs. This agency has collected the stored ICLs from the storage facility and destroyed them as per the legal norms of the Government of India. Proper handling and disposal procedures were implemented to ensure that the ICL destruction process has no negative impact on the environment. Further, ICL destruction certificates, certificate of taking over/handing over of ICL, inventory list of handling of ICLs were issued by the disposal agency which have been submitted to the VVB to ensure that the disposal was carried out in a safe and appropriate manner.

Therefore, the LEDs distributed under this project presents positive environmental impacts wherever they are applied, and no negative environmental impacts have been identified during this monitoring period.

#### 4.2.2 Local Stakeholder Consultation

The Project is already registered with VCS and registered VCS PD/04/; sections 2.2 describe the Local Stakeholder Consultation Process as in-line with VCS requirement. The Local Stakeholder Meetings were organized for local stakeholder consultation and informed local stakeholder regarding the meeting. The followings are the local stakeholders for the project activity:

- Local community
- Local village administration
- Technology suppliers
- Local vendors

All the stakeholders have been invited through public notice to attend the stakeholders meeting. The details of the Stakeholder Meetings are as follows:

The local stakeholder consultation was done at PoA level, prior to the registration of the PoA. Key institutional stakeholders like Standard making bodies, Manufacturers of LEDs and Electricity regulatory bodies act at the National level, so do leading NGOs active in this field. Moreover, the CDM PoA covers pan India. In view of the above, the stakeholder opinion has been sought at PoA level. This has been done through stakeholder meeting that was organized on **07-March-2018** in Hyderabad, India.

A list of invitees was made prior to the stakeholder's consultation meeting. They were then contacted through calls, e-mails, public advertisements and follow-ups via word of mouth to ensure maximum participation. The stakeholder meeting was well attended, and the participants were actively involved. Through this meeting, it was evident to the PP representatives that not only did the stakeholders embrace the concept, but they also wanted to be educated about the product and kept in the loop regarding information about the success of project. Overall, the PP representatives believe the engagement was robust and beneficial to all parties involved. The program got positive feedback and participants appreciated the PP's efforts for this community-based project which in addition to reducing the GHGs would also lead to improvement in living condition owing to better lighting facilities.

The outcomes from the local stakeholder consultation are available in Section F of the CDM PoA-DD<sup>2</sup>.

A systematic feedback and grievance redressal mechanism is in place under the purview of the project to address all the issues and challenges experienced by the beneficiaries. 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

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<sup>2</sup> [https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/MN26BFZCHPIR47GQ1L3YES9XVKTUD/Vbsiew](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/MN26BFZCHPIR47GQ1L3YES9XVKTUD/Vbsiew) (PoA)

for any concerns /comments on the project or project LEDs through consumer care number. The distributed LEDs carry a warranty of three years. If within this period, the bulb becomes non-functional then the project implementer will replace it free of cost at LED Replacement Centers.

The process for exchanging LED(s) under warranty has been summarized in the following steps. Firstly, the end user must contact the Distribution Agency or their designated representative using the provided consumer care number. They will then be guided to bring the faulty LED(s) and a copy of the electricity bill for service number verification to the replacement center service counter. Upon receipt of the faulty LED(s), the agent will check them for failure and verify the service number in the bill against the distribution database to ensure that the user was covered and that the claim is within the warranty period. If all conditions are met and the claim is genuine, the agent will replace the faulty LED(s) with a new equivalent LED and record the exchange in grievance register. This ensures that the user receives a satisfactory resolution to their issue with minimal hassle.

In the current monitoring period, 6 grievances were received from end users (concerning requests for additional LEDs despite already having received replacements for their ICLs and with no reported defects in the provided LED, request for replacement of damaged LEDs and replacement of non-project LEDs). All complaints were reported to the Distribution Agency or their designated representative. Beneficiaries were informed that the number of LEDs (7W and/or 12W) provided to them depended on the number of baseline incandescent bulbs (60W/100W) that could be replaced. Each household received a maximum of five LEDs, and the distribution has been completed. Further, new LEDs will only be provided in case of replacements due to defects in line with the grievance redressal process elaborated above. Upon resolution of the grievances, feedback from the end user against each complaint was recorded. Grievance redressal records have been provided to the verifying VVB.

Further, no project design change has been made by the Project Proponent under the current monitoring period.

### 4.3 AFOLU-Specific Safeguards

The project is a non-AFOLU projects hence this section is not required.

## 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/. The emission reductions of the grouped project activity are calculated using the formulae mentioned in the applied methodologies; AMS-II.C, Version 15.0/11/. The verification team has reviewed the emission reduction spread sheets (ER sheets)/02/ and checked all the formulae and found that they are correct and are in accordance with the monitoring plan of the VCS PD/04/ and CDM-CPA-DD/03/ and the applied monitoring methodology.

### Baseline Emissions

According to paragraphs 20 and 21 of the applied methodology, Option 1 i.e., ‘Constant Load Equipment’s’ is applicable for the present project. Baseline emission is calculated using the following equations:

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

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<sub>2</sub>e)

$E_{BL,y}$  = 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<sub>2</sub>/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:

$$E_{BL,y} = 0.95 * \sum_i (n_i \times \rho_i \times o_i / (1 - l_y))$$

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).

$0_i$  = 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

$$E_{BL,y} = 0.95 \times (0.9861 \times 0.1 \times 3299.6) / (1 - 0.10)$$

$$= 343.45 \text{ kWh}$$

$$BE_y = 343.45 \times 0.92 / 1000$$

$$= 0.316 \text{ tCO}_2\text{e/ICL/year}$$

#### For 60 W ICL replacing 7 W

$$E_{BL,y} = 0.95 \times (0.9811 \times 0.06 \times 3299.6) / (1 - 0.10)$$

$$= 205.03 \text{ kWh}$$

$$BE_y = 205.03 \times 0.92 / 1000$$

$$= 0.189 \text{ tCO}_2\text{e/ICL/year}$$

#### 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 (tCO <sub>2</sub> e)                                                                                                                                                                                                                                                                                                                                                                  |
| $EP_{PJ,y}$  | = | 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 <sub>2</sub> e/y)                                                                                                                                                                                                                                                                                                |

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

$$E_{PE,y} = 0.95 * \sum_i (n_i \times \rho_i \times o_i / (1 - l_y))$$

Where,

|          |   |                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $n_i$    | = | Number of group 'i' project devices operating during time interval t in year y. For calculating project emissions per LED in the current monitoring period, the value considered for the number <sup>3</sup> of project LED operating is given below:<br>7 W LED = 0.9811 (98.11%)<br>12 W LED = 0.9861 (98.61%)<br>For more details, please refer to $n_{i, \text{operational}}$ (7 W, 12 W) under section 4.2 of this MR |
| $\rho_i$ | = | 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 (3299.6 hrs)                                                                                                                                                                                                                                                                                                                              |

<sup>3</sup> When calculating project emissions per LED, the use of decimal value (for example, 0.9811 for 7W and 0.9861 for 12W) instead of proportion of operating LED devices (98.11% and 98.61%) has been considered more appropriate to ensure accurate calculations and maintain consistency throughout the analysis.

|       |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.95  | = | Net to gross adjustment factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| $l_y$ | = | 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. (Default Value has been considered- 10%) |

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,12W) of project lamp and then apportioned according to the working days for each household as per the database in the ER calculation spreadsheet/02/

#### For 12 W LEDs

$$= 0.95 \times (0.9861 \times 0.012 \times 3,299.6) / (1 - 0.10)$$

$$= 41.21 \text{ kWh}$$

$$= 41.21 \times 0.92 / 1000$$

$$= 0.038 \text{ tCO}_2\text{e/LED/year}$$

#### For 7 W LEDs

$$= 0.95 \times (0.9811 \times 0.007 \times 3,299.6) / (1 - 0.10)$$

$$= 23.92 \text{ kWh}$$

$$= 23.92 \times 0.92 / 1000$$

$$= 0.022 \text{ tCO}_2\text{e/LED/year}$$

#### 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 in p i o i, LEDs that will be distributed to the consumers are not transferred from another activity; hence leakage emissions are not applicable.

Emission reductions have been calculated in accordance with the applied methodology AMS. II. C version 15.0 /11/, and VCS PD /04/. 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 No.-17: - Parameters Determined ex-ante.**

| Parameter                | Unit                  | Value  | Assessment                                                                                                                                                      |
|--------------------------|-----------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EF <sub>CO2,ELEC,y</sub> | tCO <sub>2</sub> /MWh | 0.92   | The Project Proponent has applied the latest grid emission factor database available on the CEA database version 13.0 and fixed the value ex-ante               |
| Li <sub>12w</sub>        | Hours                 | 25,000 | The value has been determined from independent life-tests of the LEDs as per national IS 16102 (Part 2): 2017. The value has been fixed ex-ante.                |
| Li <sub>7w</sub>         | 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/, 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), MR /01/, and applied methodology /11/. 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 No. 18- Parameters monitored ex-post**

| Monitoring Parameter Requirement                                                                                                                                                                            | Assessment/ Observation by the VVB                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Data / Parameter:                                                                                                                                                                                           | Number of pieces of 60 W and 100 W baseline Incandescent Lamps replaced. (ni baseline (60W) & (100W) ) |
| Measuring Reporting frequency/Time Interval:                                                                                                                                                                | Once at the time of project installation                                                               |
| Reported value:                                                                                                                                                                                             | 60 W- 1,470,909<br>100 W- 3,163,310                                                                    |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                                                                                          | Yes                                                                                                    |
| Details of monitoring equipment:                                                                                                                                                                            | Not Applicable                                                                                         |
| 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? | Not Applicable                                                                                         |
| Calibration frequency /interval: Is it monitoring methodology /CDM guidance / local or national standards / manufacturers specification                                                                     | Not Applicable                                                                                         |
| 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?    | Not Applicable. QA/QC procedures stated in MR comply with registered VCS PD /04/                       |
| Company performing the calibration (internal or external calibration):                                                                                                                                      | Not Applicable                                                                                         |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No):                                                                                                                             | Not Applicable                                                                                         |
| Is (are) calibration(s) valid for the whole reporting period?                                                                                                                                               | Not Applicable                                                                                         |

|                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>If applicable, has the reported data been cross-checked with other available data?</p>                                                                                                                                                                                                           | <p>Yes, the reported data in MR /01/ has been compared with monitoring survey records /27/ and the ER sheet /02/. The total number of replaced LEDs has been cross checked with the database and registration certificate /26/ as provided by the PP.</p> <p>VVB confirms here that on-site assessment of Monitoring parameter ni<sub>baseline</sub> (60W) &amp; (100W) was conducted based on following two methods:</p> <ul style="list-style-type: none"> <li>• Confirmation with the household/end user whether or not the PP has performed monitoring/measurement campaign, survey on LEDs operation (for the parameter ni<sub>baseline</sub> (60W) &amp; (100W)).</li> <li>• Assessment of Competence of personnel involved in conducting</li> </ul> <p>Based on the assessment of the documentary and interviews through, the VVB team found the systems are in place and the monitoring/measuring campaign were performed.</p> |
| <p>How were the values in the monitoring report verified?</p>                                                                                                                                                                                                                                       | <p>Not Applicable</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <p>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?</p>                                                                                           | <p>Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <p>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?</p> | <p>Not Applicable</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Monitoring Parameter Requirement                                                                                                                                                                            | Assessment/ Observation by the VVB                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Data / Parameter:                                                                                                                                                                                           | Number of pieces of 60 W and 100 W baseline Incandescent Lamps destroyed. (ni baseline scrapped (60 W & 100 W)) |
| Measuring Reporting frequency/Time Interval:                                                                                                                                                                | Once at the time of project installation                                                                        |
| Reported value:                                                                                                                                                                                             | 60 W- 1,470,909<br>100 W- 3,163,310                                                                             |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                                                                                          | Yes                                                                                                             |
| Details of monitoring equipment:                                                                                                                                                                            | Not Applicable                                                                                                  |
| 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? | Not Applicable                                                                                                  |
| Calibration frequency /interval: Is it monitoring methodology /CDM guidance / local or national standards / manufacturers specification                                                                     | Not Applicable                                                                                                  |
| 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?    | Not Applicable. QA/QC procedures stated in MR comply with registered VCS PD /04/                                |
| Company performing the calibration (internal or external calibration):                                                                                                                                      | Not Applicable                                                                                                  |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No):                                                                                                                             | Not Applicable                                                                                                  |
| Is (are) calibration(s) valid for the whole reporting period?                                                                                                                                               | Not Applicable                                                                                                  |
| 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/                                           |

|                                                                                                                                                                                                                                                                                              |                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| How were the values in the monitoring report verified?                                                                                                                                                                                                                                       | Not Applicable                                                                                                                                                             |
| 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 /37/ 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? | Not Applicable                                                                                                                                                             |

| Monitoring Parameter Requirement                                                                                                                                                                            | Assessment/ Observation by the VVB                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Data / Parameter:                                                                                                                                                                                           | Number of pieces of 7W, 12 W project lamps distributed ( <b>n<sub>i</sub> project (7 w, 12 w)</b> )    |
| Measuring Reporting frequency/Time Interval:                                                                                                                                                                | Once                                                                                                   |
| Reported value:                                                                                                                                                                                             | 7 W- 1,470,909<br>12 W- 3,163,310                                                                      |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                                                                                          | Yes                                                                                                    |
| Details of monitoring equipment:                                                                                                                                                                            | Not Applicable                                                                                         |
| 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? | Not Applicable                                                                                         |
| Calibration frequency /interval: Is it monitoring methodology /CDM guidance / local or national standards / manufacturers specification                                                                     | Not Applicable                                                                                         |
| 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?    | Not Applicable. QA/QC procedures stated in MR comply with registered VCS PD /04/                       |
| Company performing the calibration (internal or external calibration):                                                                                                                                      | Not Applicable                                                                                         |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No):                                                                                                                             | Not Applicable                                                                                         |
| Is (are) calibration(s) valid for the whole reporting period?                                                                                                                                               | Not Applicable                                                                                         |
| 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 /25/ and destruction certificate/22/. |

|                                                                                                                                                                                                                                                                                              |                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| How were the values in the monitoring report verified?                                                                                                                                                                                                                                       | Not Applicable                                                                                                                                 |
| 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? | Not Applicable                                                                                                                                 |

| Monitoring Parameter Requirement                                                                                                                                                                            | Assessment/ Observation by the VVB                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Data / Parameter:                                                                                                                                                                                           | Total number of 7W, 12 W project lamps that are operational during monitoring period, <b>Number n<sub>i</sub></b> , operational (7 W, 12 W) |
| Measuring Reporting frequency/Time Interval:                                                                                                                                                                | Annually                                                                                                                                    |
| Reported value:                                                                                                                                                                                             | 7 W- 1,443,156 (98.11%)<br>12 W- 3,119,375 (98.61%)                                                                                         |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                                                                                          | Yes                                                                                                                                         |
| Details of monitoring equipment:                                                                                                                                                                            | Not Applicable                                                                                                                              |
| 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? | Not Applicable                                                                                                                              |
| Calibration frequency /interval:<br><br>Is it monitoring methodology /CDM guidance / local or national standards / manufacturers specification                                                              | Not Applicable                                                                                                                              |
| 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?    | Not Applicable.                                                                                                                             |
| Company performing the calibration (internal or external calibration):                                                                                                                                      | Not Applicable                                                                                                                              |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No):                                                                                                                             | Not Applicable                                                                                                                              |
| Is (are) calibration(s) valid for the whole reporting period?                                                                                                                                               | Not Applicable                                                                                                                              |

|                                                                                                                                                                                                                                                                                              |                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If applicable, has the reported data been cross-checked with other available data?                                                                                                                                                                                                           | Yes, the reported data in MR/01/ has been compared with the ER sheet /02/.                                                                                                 |
| How were the values in the monitoring report verified?                                                                                                                                                                                                                                       | Not Applicable                                                                                                                                                             |
| 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 /37/ 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? | Not Applicable                                                                                                                                                             |

| Monitoring Parameter Requirement                                                                                                                                                                          | Assessment/ Observation by the VVB                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Data / Parameter:                                                                                                                                                                                         | Rated power of 60 W and 100 W baseline lamps replaced, <b>Watts (<math>P_i</math> (baseline 60 W, 100 W) )</b> |
| Measuring Reporting frequency/Time Interval:                                                                                                                                                              | 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:                                                                                                                                                                          | Not Applicable                                                                                                 |
| Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD VBs not specify the accuracy of the monitoring equipment, VBs the monitoring equipment represent good monitoring practise? | Not Applicable                                                                                                 |
| Calibration frequency /interval:<br><br>Is it monitoring methodology /CDM guidance / local or national standards / manufacturers specification                                                            | Not Applicable                                                                                                 |
| Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD VBs not specify the frequency of calibration, VBs the selected frequency represent good monitoring practise?    | Not Applicable.                                                                                                |
| Company performing the calibration (internal or external calibration):                                                                                                                                    | Not Applicable                                                                                                 |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No):                                                                                                                           | Not Applicable                                                                                                 |
| Is (are) calibration(s) valid for the whole reporting period?                                                                                                                                             | Not Applicable                                                                                                 |
| If applicable, has the reported data been cross-checked with other available data?                                                                                                                        | Yes, the reported data in MR/01/ has been compared with the ER sheet /02/.                                     |

|                                                                                                                                                                                                                                                                                              |                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| How were the values in the monitoring report verified?                                                                                                                                                                                                                                       | Not Applicable                                                                                                                                                             |
| 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 /37/ 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? | Not Applicable                                                                                                                                                             |

| Monitoring Parameter Requirement                                                                                                                                                                            | Assessment/ Observation by the VVB                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Data / Parameter:                                                                                                                                                                                           | Rated power of 7W, 12W project LEDs (Watts) <b>PI</b><br>(project 7W, 12W) |
| Measuring Reporting frequency/Time Interval:                                                                                                                                                                | Once at the time of project installation                                   |
| Reported value:                                                                                                                                                                                             | 7W, 12W                                                                    |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                                                                                          | Yes                                                                        |
| Details of monitoring equipment:                                                                                                                                                                            | Not Applicable                                                             |
| 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? | Not Applicable                                                             |
| Calibration frequency /interval:<br><br>Is it monitoring methodology /CDM guidance / local or national standards / manufacturers specification                                                              | Not Applicable                                                             |
| 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?    | Not Applicable.                                                            |
| Company performing the calibration (internal or external calibration):                                                                                                                                      | Not Applicable                                                             |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No):                                                                                                                             | Not Applicable                                                             |
| Is (are) calibration(s) valid for the whole reporting period?                                                                                                                                               | Not Applicable                                                             |
| 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/.     |

|                                                                                                                                                                                                                                                                                              |                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| How were the values in the monitoring report verified?                                                                                                                                                                                                                                       | Not Applicable                                                                                                                                                             |
| 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 /37/ 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? | Not Applicable                                                                                                                                                             |

| Monitoring Parameter Requirement                                                                                                                                                                            | Assessment/ Observation by the VVB                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Data / Parameter:                                                                                                                                                                                           | Average annual technical grid losses Percent, (Ly)                              |
| Measuring Reporting frequency/Time Interval:                                                                                                                                                                | Yes, Fixed for crediting period                                                 |
| Reported value:                                                                                                                                                                                             | 10%                                                                             |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                                                                                          | Yes                                                                             |
| Details of monitoring equipment:                                                                                                                                                                            | Not Applicable                                                                  |
| 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? | Not Applicable                                                                  |
| Calibration frequency /interval:<br><br>Is it monitoring methodology /CDM guidance / local or national standards / manufacturers specification                                                              | Not Applicable                                                                  |
| 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?    | Not Applicable.                                                                 |
| Company performing the calibration (internal or external calibration):                                                                                                                                      | Not Applicable                                                                  |
| Did calibration confirm proper functioning of monitoring equipment? (Yes / No):                                                                                                                             | Not Applicable                                                                  |
| Is (are) calibration(s) valid for the whole reporting period?                                                                                                                                               | Not Applicable                                                                  |
| 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 15/11 / |

|                                                                                                                                                                                                                                                                                              |                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| How were the values in the monitoring report verified?                                                                                                                                                                                                                                       | Not Applicable                                                                                                                                                             |
| 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 /37/ 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? | Not Applicable                                                                                                                                                             |

| Monitoring Parameter Requirement                                                                                                                                                                            | Assessment/ Observation by the VVB                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data / Parameter:                                                                                                                                                                                           | Average annual operating hours of type 'i' project/baseline lamp (Hours) Oiproject (7W)/(12W) /baseline (60W)/(100W)                                                                                                                                                                                                                                                                                                                              |
| Measuring Reporting frequency/Time Interval:                                                                                                                                                                | Once, prior to or concurrent with the first ex-post monitoring                                                                                                                                                                                                                                                                                                                                                                                    |
| Reported value:                                                                                                                                                                                             | 3299.6                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                                                                                          | Yes, the measuring and reporting frequency was in accordance with the registered monitoring plan as stated in VCS PD/04/, and CDM-CPA-DD/03/ and also in-line with methodology AMS II.C. Version 15.0 defined in the monitoring plan and in the MR/01/. This is verified by the assessment team by thorough desk-review, on-site visit to selected LED samples, cross-verification of supporting evidences and interview with PP representatives. |
| 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 /04/                                                                                                                                                                                                                                                                                                                                                                                        |

|                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Calibration frequency /interval:</b></p> <p><b>Is it monitoring methodology /CDM guidance / local or national standards / manufacturers specification</b></p>                                                    | <p>As verified by the assessment team from the PP representatives during on-site visit that the run time meter consists of a remote unit having tele metering circuit which receives the signals generated by the electronic meters fitted with an external device at the consumer 's premises. The remote units are connected to the server through a dedicated communication link, the GPRS module which needs a SIM card to work, just like the mobile phone. These meters are non- resettable to avoid accidental resetting. The operating hour recording is triggered when the connected bulb is switched on, sending signal to the server. The server stops receiving the signal, the moment the device is switched off. The time lapse between the start of receipt of signal and the moment it stops receiving it, is recorded and is the operating time for that particular event. The instrument does not require calibration as it does not measure any parameter, rather just sends signals to the server. Prior to the start of deployment, meters are sent back to the manufacturer, are refurbished and the sims are reconfigured for the particular location</p> |
| <p><b>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?</b></p> | <p>Not Applicable, as no metering equipment used in current monitoring period.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p><b>Company performing the calibration (internal or external calibration):</b></p>                                                                                                                                   | <p>Not Applicable</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Did calibration confirm proper functioning of monitoring equipment? (Yes / No):</b></p>                                                                                                                          | <p>Not Applicable</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Is (are) calibration(s) valid for the whole reporting period?</b></p>                                                                                                                                            | <p>Not Applicable</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>If applicable, has the reported data been cross-checked with other available data?</b></p>                                                                                                                       | <p>Not Applicable</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>How were the values in the monitoring report verified?</b></p>                                                                                                                                                   | <p>Not Applicable</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>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?</p>                                                                                           | <p>Yes, the data management ensures correct transfer of data from monitoring survey /37/ and reporting of emission reductions and all necessary QA/QC processes are in place. While noting that the PP did not have control over the logging of data for operating hours, as it was done automatically. However, after receiving the downloaded data, manual data cleaning was performed. Readings that were less than 90 days and high-value readings indicating errors or malfunction were excluded from the calculations. A conservative approach was taken, and such data points were not considered. An upper and lower cutoff range was also determined to eliminate outliers from the dataset and values can be referred from MR/01/. Further, as part of the quality control on the data collected, the reliability calculation was performed, Reliability levels were set at 95% confidence and 10% precision. The required confidence and precision were met for this parameter (Precision level of 1.18% was achieved, please refer operating hours calculation spreadsheet)</p> |
| <p>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?</p> | <p>Not Applicable</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

#### Sampling approach: -

As assessed in this section, emission reductions for the project “SHINE- Distribution of LED Lightbulbs in India -6” has being claimed for this monitoring period and the total population of the LED distributed for this monitoring period from **01-June-2022 to 30-June-2023** is **4,634,219 LEDs** out of which **4.562,531 LEDs** were operational.

The sampling plan implemented by the PP is in accordance with the applied approved monitoring methodology /11/ and the VCS PD /04/. The PP 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 15.0/11/. As the VCS PD /04/and CDM-CPA -DD/03/ 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 /26/. Monitoring parameters  $O_{i\text{project}}$  and  $n_{i\text{operational}}$  are monitored through monitoring sample surveys. Monitoring of the parameters ensures compliance with the applied methodology AMS- II.C. – version 15 /11/. Verification team has checked the survey records /24/ and sample size calculation. Parameter  $o_i$  project monitors the average annual operating hours of project LEDs and the parameters  $n_{i\text{operational}}$  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 /04/. 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)/15/

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

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

$$n \geq \frac{1.96^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.96^2 p(1-p)}$$

Here,

$n$ = Sample Size

$N$ = Number of Households

$p$ = Expected proportion – conservative assumption of 90% has been applied for sample size calculation

1.96= Represents the 95% confidence required

0.1= Represents the 10% precision required

For mean value parameters (operational hours of LED), monitoring survey/37/ was carried out as part of first verification under CDM.

The resultant applied sample size by the PP is summarized in Table No:- 19 below.

| Grouped Project VCS 2700      | LED Distributed |          |
|-------------------------------|-----------------|----------|
|                               | 7W LED          | 12 W LED |
| Sample Size                   | 43              | 43       |
| Actual number of LED Surveyed | 53              | 72       |

|                                        |        |       |
|----------------------------------------|--------|-------|
| Number of LED found operational- $n_i$ | 52     | 71    |
| LED loss Rate for MP-2                 | 1.89%  | 1.39% |
| Precision achieved                     | 3.73 % | 2.74% |

VVB independently checked if the precision levels achieved were within 95/10 confidence/precision levels adopting excel functions.

**Achieved precision  $p_{\text{achieved}} \% = ((\text{NORM.INV}(1 - ((1 - 0.95)/2), 0, 1) * \text{SQRT}((p * (1 - p)) / n)) * 100)$**

here 95 refers to 95/10 confidence interval and since random sampling is performed by the PP

- i. For 7 W LED lamp,  $p = 52/53 = 0.9811$ ,  $n = 53$ ,  **$p_{\text{achieved}} = 3.73\%$** .

The precision level is acceptable as it is less than the reject value of 5% taken by VVB and it is coming same with the precision achieved by PP represented in Table No.-19 above.

- ii. Similarly for 12 W lamp,  $p = 71/72 = 0.9861$ ,  $n = 72$   **$p_{\text{achieved}} = 2.74\%$**  which is lower than than the expected reject value of 5% taken by VVB and it is coming same with the precision achieved by PP represented in Table No.-19 above.

Thus, VVB found the precision levels to be acceptable as per the sampling standards and normative procedures as far as calculation of precision levels from first principles adopting statistical sampling are concerned.

VVB used acceptance 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 /18/, a sample size of **11 LEDs of each type;( 7W and 12W, Total = 22 LEDs)** was chosen (with no discrepant records). A sample size of **11 LEDs of each type;( 7W and 12W, Total = 22 LEDs)** 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. It was observed that out of the 11 samples of each LED type, all the 11 LEDs (**11 LEDs of each type;( 7W and 12W, Total = 22 LEDs)**) were found to be operational and this matched with the PP's records and hence no discrepant records were observed with the MR /01/ and ER sheet /02/ and thus  $c=0$ . Thus, PP's set of records has been accepted in line with para 33 of the sampling standard, version 09 /18/. 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 ( $ni_{\text{operational}}$ )
2. Operating hours of replaced ICL lamps or installed LEDs using run time meters ( $Oi_{\text{project}}$ )

Simple random sampling was applied by the PP for selection of the monitoring samples with 95/10 confidence/precision for determining the sampling for all the parameters which is deemed acceptable as per the VCS PD /04/

On-site assessment of Monitoring parameters (namely  $ni_{\text{operational}}$  and  $Oi_{\text{project}}$ ) 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  $ni_{\text{operational}}$ ) and survey on LED bulbs operation (for the parameter  $Oi_{\text{project}}$ ).
- Assessment of Competence of personnel involved in conducting standardized tests viz.,  $ni_{\text{operational}}$  and  $Oi_{\text{project}}$  and surveys: Verification team has reviewed the abilities, qualifications and recognition of involved personnel and institutions of the measuring team involved in the  $ni_{\text{operational}}$  and  $Oi_{\text{project}}$ . The verification team based on onsite visit interviews confirms that the team was qualified to carry out the  $ni_{\text{operational}}$  and  $Oi_{\text{project}}$  in line with the methodology.

PP has explained the process of conducting measurement campaign. surveys were done via data loggers. The operating hours ( $Oi_{\text{project}}$ ) 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 with PP's representative, VVB was able to understand the process in line with the methodology AMS II.C. version 15/11/ and the PP monitoring procedure in line with the registered VCS PD /04/ and CDM-CPA-DD/03/.

VKU's sample for acceptance sampling was the same for both the parameters. VVB could verify the original survey forms /23/ 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/28/ from **07-July-2022 to 11-July-2022**. For this monitoring period, 1<sup>st</sup> monitoring survey conducted by PP is applicable as per CDM SSC guidelines version 22.1/48/. This grouped project involves distribution of LED bulbs (project device) with life expectancy of 25000 hours (more than 4 years) and they came with a free replacement warranty of 3 years from the date of distribution. Since the project fulfils both the conditions of para 27 of SSC CDM guidelines, monitoring survey conducted from 07-July-2022 to 11-July-2022, is valid to be applied till 30-June-2023 (12 months after the survey). However, as per the applied methodology AMS II. C., as

per the monitoring requirement specified in the applied methodology, *ni operational* is required to be monitored annually.

Since no LEDs have been distributed in the current monitoring period; the first VCS Monitoring survey conducted from 07-July-2022 to 11-July-2022 for parameter *ni operational* are applicable till month of July 2023<sup>4</sup>. CL#03 point-6 was raised to which PP provided the same clarification which is now incorporated in section 4.3 of MR and section 4.4 of this verification report.

Hence the survey process is deemed acceptable to the verification team as per para 27 of the SSC general guidelines/48/ henceforth, the first monitoring survey results are applicable for the second monitoring period (01-June-2022 to 30-June-2023, both days included). Furthermore, the database and sample sales record /21/ was also checked/cross verified to confirm the number LEDs for the parameter *ni operational*.

As per paragraph 25 of the Sampling Standard, version 09 /18/, 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:

- Whether the required confidence/precision has been met;
- Whether the selected sample was representative of the population.

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<sup>4</sup> «PA/CPAs may apply the result of the surveys for monitoring period up to 12 months after the date of the survey if: (a) The average lifetime of the units is known and is four years or more. It shall also be confirmed by e.g. previous experience with similar technologies or manufacturer or the elements of the project design, in order to assure that the local conditions are unlikely to result in premature failure of the technology.» (b) At least 50 per cent of the distributed units were functional in the previous survey undertaken by PAs/CPAs (this condition is applicable only after the first monitoring survey is concluded).» In this project involving the distribution of LED bulbs, the devices have a life expectancy of 25000 hours (more than 4 years) and are accompanied by a free replacement warranty spanning 3 years from the distribution date. Meeting both conditions outlined, the monitoring survey conducted from 07-July-2022 to 11-July-2022 remains valid until 30-June-2023 (12 months after the survey). Consequently, the results from the first survey are also applicable for the second monitoring period, covering 01-June-2022, to 30-June-2023 (inclusive of both dates). Thus, applicability of monitoring survey results for up to 12 months is in line with para 27 of the SSC general guidelines.

As per the applied methodology, and registered VCS PD/04/ and CDM-CPA-DD/03/. 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. 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 /04/ and CDM-CPA -DD/03/. The total number of emission reductions for the current monitoring period from **01-June-2022 to 30-June-2023** is **1,217,095 tCO<sub>2</sub>e** which is slightly lower by 1.52% from the estimated emission reduction of **1,235,622 tCO<sub>2</sub>e** which is due to Loss Rate of 1.89% for 7 W LEDs and 1.39% for 12 W LEDs observed in the current monitoring period and this was confirmed through the monitoring survey sheet/37/ submitted by PP and found acceptable.

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 reported emission reduction, VKU 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, VKU 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/01/, VKU 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 Section 2.2 above.

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan. No significant, lack of evidence and missing data were detected during verification. Hence, the verification team confirms that the monitoring system ensures required quality of the monitoring system to ensure the quality of the monitored data. All internal data are subjected to QA/QC measures.

The operational status of project LEDs is monitored through sample survey following UNFCCC sampling and survey guideline follows 95/10 confidence precision. 95/10 is a methodological choice. The survey forms/21/ and photographs were checked to ascertain the monitoring results reported in survey/28/. For enhancing the survey reliability and QA/QC, training has been

provided to the data collector during survey /25/ which was further verified from the training details provided by the PP/25/. It is also noted the achieved precision is less than 10% as stated in table no-19 which can be cross verified with the help of sampling survey sheet and hence meets the desired confidence precision. The monitored results are found consistent with on-site audits.

Also, PP has set up grievance/repair mechanisms/27/ and rectifies any issues for the operation of the project device. So, VKU is of the opinion that this method of calculation of emission reductions is accurate and results in conservative estimation of emission reduction and is line with the applicable VCS requirements set out in section 3.15 of VCS Standard version 4.5/07/ and that the verification of the GHG statement was conducted in in accordance with ISO 14064-3; 2019/44/ and applied methodology/11/.

#### 4.6 Non-Permanence Risk Analysis

Since this is not an AFLOU project hence this section is not applicable.

## 5 VERIFICATION OPINION

VKU Certification Pvt. Ltd. has performed second periodic verification of the emission reductions reported for the grouped project activity “**SHINE- Distribution of LED Lightbulbs in India -6**”, VCS Registry Project ID 2700, for the monitoring period from **01-June-2022 to 30-June-2023** (Inclusive of both start and end dates) under fixed crediting period of 10 years from **25-March-2021 to 24-March-2031** (Inclusive of both start and end dates) with regard to the relevant requirements for VCS activities with a **reasonable level of assurance**.

The project proponents of the “**SHINE- Distribution of LED Lightbulbs in India -6**” are responsible for:

- The preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the grouped project on the basis set out in the monitoring plan contained in the registered VCS PD/04/ and CDM-CPA-DD/03/.
- The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the grouped project.

It is the responsibility of VKU to express an independent verification opinion about the project’s conformity with the requirements of VCS Standard version 4.5/09/ and GHG program applied, on the reported greenhouse gas emission reductions from the grouped project.

Based on documented evidence and confirmed by an on-site assessment, VKU can confirm that:

- The grouped project has been implemented and operated as per the registered VCS PD/04/ and CDM-CPA-DD/03/;
- The monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Standard version 4.5 requirements/09/;
- The monitoring is in place as per the applied baseline and monitoring methodology/11/;
- The monitoring plan in the registered VCS PD/04/ and CDM-CPA-DD/03/ is as per the applied baseline and monitoring methodology /11/.

VKU’s verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. VKU Certification planned and performed the verification by obtaining evidence and other information and explanations that VKU Certification considered necessary to give Reasonable level of assurance that reported GHG emission reductions are fairly stated.

As per VCS Standard Version **4.5- clause 4.1.23, 4.1.24 and 4.1.25**, VKU is of opinion that that GHG emission reduction stated in the **monitoring report version 1.3 dated 19-December-2023** for the “**SHINE- Distribution of LED Lightbulbs in India -6**” in India for the period **01-June-2022 to 30-June-2023** (both dates included) are fairly and correctly stated.

Table No 20: Opinion/Conclusion by Validation-Verification Body

| Opinion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Final Documents                                                                                                   | Monitoring Period                                  | Emission Reductions achieved | Remarks                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Positive opinion <input checked="" type="checkbox"/><br>Negative Opinion <input type="checkbox"/><br>Adverse Opinion <input type="checkbox"/><br>Unmodified Opinion <input checked="" type="checkbox"/><br>Modified Opinion <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Monitoring Report Version 1.3 dated 19-December-2023<br>Emission Reduction Sheet Version 03 dated 04-October-2023 | 01-June-2022 to 30-June-2023 (both dates included) | 1,217,095 tCO <sub>2</sub> e | The GHG emission reductions are calculated on the basis of approved methodology /11/ and the monitoring plan included in the registered VCS PD /04/ and CDM-CPA-DD/03/ |
| <p>Hence VKU is able to certify that the emission reduction from the project during the current monitoring period from <b>01-June-2022 to 30-June-2023 ((both dates included))</b> amounts to 1,217,095 tCO<sub>2</sub>e assessed in line with the applicable VCS requirements set out in section 3.15 of VCS Standard version 4.5/09/</p> <p>The VVB hereby issues a positive and unmodified opinion in accordance with ISO 14064-3:2019/44/, and ISO 14065:2020/45/ Section 09- Clause 9.7.1.6 &amp; 9.7.2. This opinion also meets the requirement stipulated under ISO/IEC 17029:2019/46/, Section 9.7 with a reasonable level of assurance for the reported GHG emission reduction data which is free from any material misstatement and is sufficiently supported by evidences provided to VVB by PP tabulated in Table No.- 05 of this report.</p> |                                                                                                                   |                                                    |                              |                                                                                                                                                                        |

Verification period: From 01-June-2022 to 30-June-2023 (both dates included):

| Year                                            | Baseline emissions or removals (tCO <sub>2</sub> e) | Project emissions or removals (tCO <sub>2</sub> e) | Leakage emissions (tCO <sub>2</sub> e) | Net GHG emission reductions or removals (tCO <sub>2</sub> e) |
|-------------------------------------------------|-----------------------------------------------------|----------------------------------------------------|----------------------------------------|--------------------------------------------------------------|
| Year 2022<br>(01-June-2022 to 31-December-2022) | 748,689                                             | 89,301                                             | 0                                      | 659,388                                                      |
| Year 2023<br>(01-January-2023 to 30-June-2023)  | 633,237                                             | 75,530                                             | 0                                      | 557,707                                                      |
| <b>Total</b>                                    | <b>1,381,926</b>                                    | <b>164,831</b>                                     | <b>0</b>                               | <b>1,217,095</b>                                             |

Comparison of Ex-Ante emission reductions/removals and Achieved emission reductions/removals under this grouped project are summarized below

Monitoring Period dates: 01-June-2022 to 30-June-2023

Number of Days: 395

**Table 21: Comparison of ex-ante and achieved ERR values under MP 2**

| Year                                          | Ex-ante emissions reductions/removals | Achieved emissions reductions/removals | Percent difference | Justification for the difference                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------|----------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 2022<br>01-June-2022 to 31-December-2022 | 669,426 tCO <sub>2</sub> e            | 659,388 tCO <sub>2</sub> e             | -1.52 %            | Achieved Emission slightly lesser than ex-ante ERRs based on monitoring survey result (Loss Rate: 1.89% for 7 W LEDs and 1.39% for 12 W LEDs). Monitoring survey sheet has been submitted to the VVB for reference wherein the percentage of operational LEDs has been calculated. Details can be referred from n <sub>i</sub> , operational (7 W, 12 W) parameter in section 4.2 of the MR/01/. |
| Year 2023<br>01-January-2023 to 30-June-2023  | 566,196 tCO <sub>2</sub> e            | 557,707 tCO <sub>2</sub> e             | -1.52%             |                                                                                                                                                                                                                                                                                                                                                                                                  |

# APPENDIX A: ABBREVIATIONS

| Abbreviations     | Full texts                                            |
|-------------------|-------------------------------------------------------|
| BE                | Baseline Emissions                                    |
| BEF               | Baseline Emission Factor                              |
| CAR               | Corrective Action Request                             |
| CDM               | Clean Development Mechanism                           |
| CL                | Clarification Request                                 |
| CO <sub>2</sub>   | Carbon dioxide                                        |
| CO <sub>2</sub> e | Carbon dioxide equivalent                             |
| CQC               | C-Quest Capital                                       |
| DNA               | Designated National Authority                         |
| EF                | Emission Factor                                       |
| ER                | Emission Reductions                                   |
| FAR               | Forward Action Request                                |
| GHG(s)            | Greenhouse gas(es)                                    |
| GWP               | Global Warming Potential                              |
| HH                | Household                                             |
| IPCC              | Intergovernmental Panel on Climate Change             |
| MoV               | Means of Verification                                 |
| MR                | Monitoring Report                                     |
| NA                | Not Applicable                                        |
| OSV               | On Site Visit                                         |
| PAI               | Project Activity Instances                            |
| PD                | Project Description                                   |
| PP(s)             | Project Proponent(s)                                  |
| QA/QC             | Quality Assurance /Quality Check                      |
| Ref.              | Document Reference                                    |
| SS(s)             | Sectoral Scope(s)                                     |
| TA(s)             | Technical Area(s)                                     |
| UNFCCC            | United Nations Framework Convention on Climate Change |

|     |                                      |
|-----|--------------------------------------|
| VCU | Verified Carbon Unit                 |
| VCS | Verified Carbon Standard             |
| VKU | VKU Certification Ltd.               |
| VVS | Validation and Verification Standard |
| VVB | Validation and verification body     |

# APPENDIX B: AUDIT FINDINGS

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------------------------------|
| Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Date      | 20-September-2023                               |
| CAR#01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Reference | Section of Ver protocol: Cover MR and Section 1 |
| Description of the Non-Conformance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                                                 |
| <ol style="list-style-type: none"> <li>1. <b>Content and Title page of MR</b> <ol style="list-style-type: none"> <li>1.1 During desk review assessment team finds that “page numbers” are missing throughout the MR.</li> <li>1.2 During desk review assessment team finds that font size, style and colour throughout the MR are not in accordance to the VCS MR template version 4.2</li> </ol> </li> <li>2. <b>Section 1.1 of MR</b> <ol style="list-style-type: none"> <li>2.1 During desk review verification team identified that the “filling guidelines” for this section of MR are not deleted.</li> <li>2.2 Verification team finds that project is small or large scale is not indicated in this section. They are inconsistent with the registered VCS PD.</li> <li>2.3 Assessment team finds that audit history is not updated in accordance to CDM and VCS. As per the requirement of VCS Monitoring Report Template version 4.2 the total days/months are required to be mentioned.</li> </ol> </li> <li>3. <b>Section 1.3 of MR</b> Assessment team finds that email address is not mentioned in this section.</li> <li>4. <b>Section 1.7 of MR</b> As per latest VCS Standard Version 4.5, the details of project location are found insufficient.</li> <li>5. <b>Section 1.10 of MR</b> As per the VCS MR template version 4.2 PP have to update this section of the public statement(s) and email(s) in this report or as an appendix.</li> <li>6. <b>Section 1.11 of MR</b> <ol style="list-style-type: none"> <li>6.1 During desk review verification team finds that the number of LEDs distributed over project lifecycle to increase the reliance on clean fuels of the end users is not mentioned in this section.</li> <li>6.2 Verification Team finds that SDG target number is not mentioned correctly. also, there is inconsistency between the definition of mentioned SDG indicator in MR version 01 under the table 01 and SDG link provided in MR template version 4.2 under section</li> <li>6.3 Verification team finds that the reference of the emission reductions prevented over the life time of this project activity and the values for all the monitoring periods separately are not mentioned in this section.</li> </ol> </li> </ol> |           |                                                 |
| 1 <sup>st</sup> Response from PP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Date      | 26-September-2023                               |
| <ol style="list-style-type: none"> <li>1. <b>Content and Title page of MR</b> <ol style="list-style-type: none"> <li>1.1 Page numbers have been inserted throughout the revised MR being submitted to the VVB in accordance with the VCS MR template version 4.2.</li> <li>1.2 Font size, style and colour throughout the revised MR have been corrected in accordance with the VCS MR template version 4.2.</li> </ol> </li> <li>2. <b>Section 1.1 of MR</b> <ol style="list-style-type: none"> <li>2.1 Filling guidelines have been removed as part of revised MR being submitted to the VVB.</li> </ol> </li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                                                 |

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|-------------|-------------------|
| <p><b>2.2</b> The grouped project under VCS is categorised as "project" in line with the section 1.10 of the registered VCS PD<sup>5</sup>. Reference to term "small-scale" has been removed in Section 1.1 of the revised MR being submitted to the VVB.</p> <p><b>2.3</b> Details regarding Audit history of the project under CDM and VCS has been updated in Table 2 in Section 1.1 of the revised MR being submitted to the VVB. As per the requirement of VCS Monitoring Report Template version 4.2, total 1.08 year or 1 year and 1 month has been mentioned in Table 2 of the revised MR.</p> <p><b>3. Section 1.3 of MR</b> Email address (for other entity involved in the project- Convergence Energy Services Limited) has been added in section 1.4 of the revised MR being submitted to the VVB.</p> <p><b>4. Section 1.7 of MR</b> PP would like to clarify that as per document titled "August 2023 Overview of VCS Program Updates and effective dates"<sup>6</sup> (Please refer to point 14 on page 4) updated project location requirements as mentioned in section 3.11.1 of VCS standard v4.5 are effective immediately for projects that initiate any validation process after 29-August-2023. Since the validation process was initiated and completed before 29-August-2023 (28-October-2022 as the date of Final Validation Report has been mentioned in Table 2 of the MR), therefore PP is not required to update section 1.7 of the MR.</p> <p><b>5. Section 1.10 of MR</b> PP would like to clarify that distribution agencies have been informed that the Verified Carbon Units (VCUs) maybe issued for the greenhouse gas emission reductions and removals under this grouped project. For these VCUs, the PP will be claiming carbon credits under VERRA. Evidence of the emails and public statement has been submitted to the VVB during verification of the project as well as added in the appendix- B of the revised MR being submitted to the VVB.</p> <p><b>6. Section 1.11 of MR</b></p> <p><b>6.1</b> PP would like to clarify that total 4,634,219 LED were distributed till 01-May-2022 under this grouped project. Total 4,562,531 LEDs are operational under the current monitoring period which can be further confirmed through the monitoring survey. Same has been added in section 1.11 of the revised MR being submitted to the VVB.</p> <p><b>6.2</b> SDG Target has been updated in line with definition mentioned in MR template version 4.2.</p> <p><b>6.3</b> PP would like to clarify that the contributions over project lifetime are equivalent to the project contribution in the second monitoring period since SDG contributions from MP 1 (25-March-2021 to 31-May-2022 (inclusive of both dates)) were not included in previously approved monitoring report. Details under column by name of "Contributions over the project lifetime" have been mentioned accordingly in the revised MR being submitted to the VVB.</p> |               |        |             |                   |
| <b>1<sup>st</sup> Assessment by Audit Team</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Status</b> | Closed | <b>Date</b> | 26-September-2023 |
| <p><b>1. Content and Title page of MR</b></p> <p>1.1 Assessment team confirms that PP has updated the content table, font size and font style throughout the revised MR according to the current VCS MR template version 4.2. Hence accepted</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |        |             |                   |

<sup>5</sup> <https://registry.verra.org/app/projectDetail/VCS/2700>

<sup>6</sup> <https://verra.org/wp-content/uploads/2023/08/August-2023-Overview-of-VCS-Program-Updates-Effective-Dates-12-Sept-2023.pdf>

## 2. Section 1.1 of MR

2.1 Assessment team verifies and confirms that PP has removed the MR template guideline and updated the revised MR. Hence accepted

2.2 Assessment team verifies and confirms that PP has updated the scale of project as per registered VCS PD. Hence accepted

2.3 Assessment team confirms that PP has updated the audit history table according to the CDM and VCS in section 1.1 of MR. Hence accepted

## 3. Section 1.3 of MR

3.1 Assessment team confirms that PP has mentioned the email address in revised MR. Hence accepted

## 4. Section 1.7

4.1 Assessment team confirms that the requirement of section 1.7 (Project Location) is consistent with VCS standard version 4.5. Hence Accepted

## 5. Section 1.10

5.1 Assessment team confirms that PP has updated the section of 1.10 in revised MR and also submitted the evidence of the public statement and email screenshot. Hence accepted

## 6. Section 1.11

6.1 Assessment team confirms that PP has clearly mentioned the number of LEDs distributed over project lifecycle to increase the reliance on clean fuels of the end users in revised MR and evidence was submitted for the same by PP. Hence

6.2 Assessment team confirms that PP has updated SDG target number and the Statement of SDG 13 in section 1.11 of MR and now it is as per the MR template version 4.2 requirement. Hence accepted

6.3 The assessment team verifies and confirms that PP has mentioned the actual emission reductions achieved under VCS during the current monitoring period in Table 4- SDG Contributions table in Section 1.11 of the revised MR. Hence accepted

Hence CAR#01 is Closed

| Type                                                                                                                                                                                                                                      | Date      | 20-September-2023                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------------------------------|
| CAR#02                                                                                                                                                                                                                                    | Reference | Section of Ver protocol: Section 3 and 4 |
| Description of the Non-Conformance                                                                                                                                                                                                        |           |                                          |
| <p>1. Section 3.1 of MR –</p> <p>1.1 Assessment team finds that the implementation status is inconsistent with the requirement of VCS MR template version 4.2 and technical specifications of the distributed LEDs are not mentioned.</p> |           |                                          |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |        |                   |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|-------------------|-------------------|
| <div>1.2 Assessment team finds that the PP has not mentioned region wise distribution of LEDs to give a clear idea about the implementation status of the project activity.</div> <div>2. <b>Section 3.2.1 of MR</b> – As per the requirement of MR template version 4.2 any deviations taken during the previous verifications and validation are need to be mentioned in this section.</div> <div>3. <b>Section 3.2.2 of MR</b> - As per the requirement of MR template version 4.2 any project description deviations taken during the previous verifications and validation are need to be mentioned in this section.</div> <div>4. <b>Section 4.2 of MR</b> - Assessment team finds that this statement is inconsistent with the section requirement.</div>                                                                                                                                                                                                                                                                                                                                                                                                         |        |        |                   |                   |
| 1 <sup>st</sup> Response from PP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        | Date   | 26-September-2023 |                   |
| <div>1. <b>Section 3.1 of MR</b> –<div>1.1 Implementation status of the project activity has been updated in line with the requirement of VCS MR template version 4.2. Technical specifications of the distributed LEDs -7 W and 12 W have been added in section 3.1 of the revised MR being submitted to the VVB.</div><div>1.2 Region wise LED distribution figures have been added in section 3.1 of the revised MR being submitted to the VVB.</div></div> <div>2. <b>Section 3.2.1 of MR</b> – No methodology deviations were applied during the previous verification and validation under this grouped project. Same has been added in the revised MR being submitted to the VVB.</div> <div>3. <b>Section 3.2.2 of MR</b> - No project description deviations were applied during the previous verification and validation under this grouped project. Same has been added in the revised MR being submitted to the VVB.</div> <div>4. <b>Section 4.2 of MR</b> - No monitoring equipment was used for parameter described as "Number of pieces of 7W,12 W project lamps distributed". Same has been updated in the revised MR being submitted to the VVB.</div> |        |        |                   |                   |
| 1 <sup>st</sup> Assessment by Audit Team                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Status | Closed | Date              | 26-September-2023 |
| <div>1. <b>Section 3.1 of MR</b> –<div>1.1 Assessment team verifies and confirms that PP has updated the implementation status of the project activity in revised MR with the requirement of VCS MR template version 4.2. Technical specifications of the distributed LEDs -7 W and 12 W have been added in section 3.1 of the revised MR. Hence accepted</div><div>1.2 Assessment team finds that PP has mentioned the region wise LED distribution in revised MR section 3.1. Hence accepted</div></div> <div>2. <b>Section 3.2.1 and 3.2.2 of MR</b><div>2.1 Assessment team verifies and confirms that PP has updated the Statement in the revised MR for this section 3.2.1, section 3.2.2 and it is now applicable for the current monitoring period. Hence accepted</div></div> <div>3. <b>Section 4.2 of MR</b><div>3.1 Assessment team verifies and confirms that PP has updated the statement as per the section requirement. Hence accepted</div></div> <div>Hence CAR#02 is Closed</div>                                                                                                                                                                     |        |        |                   |                   |

|             |             |                          |
|-------------|-------------|--------------------------|
| <b>Type</b> | <b>Date</b> | <b>29-September-2023</b> |
|-------------|-------------|--------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           |                                                               |                 |                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------|-----------------|-------------------------|
| CAR#03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Reference | Section of Ver protocol:<br>Cover MR and Section 1,3<br>and 4 |                 |                         |
| Description of the Non-Conformance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |                                                               |                 |                         |
| <div>1. <b>Section- 1.7 of MR;</b> - Please update this section as per the latest requirement under VCS standard v4.5 i.e., section 3.11.1.</div> <div>2. <b>Section 1.9 of MR;</b> - Please provide the CERs issued under CDM for this project and their respective vintages.</div> <div>3. <b>Section 3.1 of MR;</b> - In order to reconcile the household distribution, PP is requested to provide the HH distribution of LEDs.</div> <div>4. <b>Section 4.3 of MR;</b><div>4.1 In the formula in spreadsheet, 1/2 was not used in the Nr of the given equation.</div><div>4.2 The formula as given above or equation 8 in the guidelines document is not used to arrive at the results of monitoring survey analysis.</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |                                                               |                 |                         |
| 1st Response from PP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           | Date                                                          | 04-October-2023 |                         |
| <div>1. <b>Section- 1.7 of MR;</b> - PP would like to clarify that as per document titled <a href="#">“August 2023 Overview of VCS Program Updates and effective dates”</a> (Please refer to point 14 on page 4) updated project location requirements as mentioned in section 3.11.1 of VCS standard v4.5 are "effective immediately for projects that initiate any validation process after 29-August-2023". Since the validation process was initiated and completed before 29-August-2023 (28-October-2022 as the date of Final Validation Report has been mentioned in Table 2 of the MR, further project was registered on VERRA on 22-February-2022), therefore PP is not required to update section 1.7 of the MR.</div> <div>2. <b>Section 1.9 of MR;</b> - PP would like to clarify that <a href="#">SHINE CPA 6</a> included under <a href="#">POA 10484</a> on 10-April-2021 and it was not pursued under CDM for verification. Hence no CERs have been received under CDM for this project (Please refer Audit History of the project under table 2 in MR).</div> <div>2. <b>Section 3.1 of MR;</b> - District wise grid connected household figures under VCS 2700 have been furnished in Table 7 of the revised MR being submitted to the VVB.</div> <div>3. <b>Section 4.3 of MR;</b><div>4.1 Revised Sampling Survey Sheet is being submitted to the VVB.</div><div>4.2 The Revised ER Sheet is being submitted to the VVB.</div></div> |           |                                                               |                 |                         |
| 1st Assessment by Audit Team                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           | Status                                                        | Closed          | Date<br>06-October-2023 |
| <div>1. <b>Section- 1.7 of MR;</b> - Assessment team verifies and confirms that PP has updated this section as per the effective document of VCS <a href="#">and also provided justification that as per this document titled “August 2023 Overview of VCS Program Updates and effective dates” the location to be</a> “effective immediately for projects that initiate any validation process after 29-August-2023”. Since the validation process was initiated and completed before 29-August-. Hence accepted.</div> <div>2. <b>Section 1.9 of MR;</b> - Assessment team verifies and confirms that project did not pursue under CERs issuance under CDM verification. Hence no CERs have been received under CDM for this project which is acceptable to the assessment team.</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |                                                               |                 |                         |

3. **Section 3.1 of MR;** - Assessment team verifies and confirms that the PP has mentioned the district wise grid connected household figures in Table 7 of the revised MR which is found to be correct. Hence accepted
4. **Section 4.3 of MR;** Assessment team confirms that PP has submitted Revised Sampling Survey Sheet and ER sheet. Hence accepted

Hence CAR#03 is Closed

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------|
| Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Date      | 20-September-2023                           |
| CL#01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Reference | Section of Ver protocol:<br>Section 1,2 & 4 |
| <b>Description of the Non-Conformance</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |                                             |
| <ol style="list-style-type: none"> <li>1. <b>Section 1.1 of MR;</b> PP to clarify if this distribution has happened in current monitoring period as the dates here are not matching with current monitoring period dates</li> <li>2. <b>Section 1.8 of MR;</b> Verification team could not find the hyperlink for all tool, methodology and standard reference in the MR version ` 1.0 provided for verification.</li> <li>3. <b>Section 1.11 of MR;</b> <p>3.1 PP to clarify if this 928,699 LEDs distributed in current monitoring period and result in current project contribution as per the MR template version 4.2</p> <p>3.2 Assessment team was not able to verify the statement referred here from the document, kindly help provide the reference for the number of failed LEDs estimated.</p> <p>3.3 PP to clarify how the estimated emission reduction value is valid for the contributions over project lifetime as this section needs the contributions that has happened over project lifetime as per the requirement of VCS MR template Version 4.2</p> </li> <li>4. <b>Section 2.2 of MR;</b> PP to provide the sample feedback forms.</li> <li>5. <b>Section 4.3 of MR;</b> PP to clarify that, is there any other party authorized by PP to implement this project, if not, kindly edit the description as per the current project scenario</li> </ol> |           |                                             |
| 1 <sup>st</sup> Response from PP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Date      | 26-September-2023                           |
| <ol style="list-style-type: none"> <li>1. <b>Section 1.1 of MR;</b> PP would like to clarify that the date of last LED installed was 01-May-2022. No further distribution of project LEDs has been carried out or planned after 01-May-2022 under this grouped project. Therefore, no LED has been distributed under the current monitoring period (01-June-2022 to 30-June-2023, inclusive of both dates).</li> <li>2. <b>Section 1.8 of MR;</b> Available hyperlinks for the tools, methodology and standard have been incorporated in the revised MR being submitted to the VVB.</li> <li>3. <b>Section 1.11 of MR;</b> <p>3.1 PP would like to clarify that total 4,634,219 LEDs were distributed until 01-May-2022. Total 4,562,531 project LEDs are operational under the current monitoring period which can be further confirmed through monitoring survey which has resulted in current project contribution.</p> </li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |                                             |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |        |             |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|-------------|-------------------|
| <p>3.2 PP would like to clarify that appendix C of the revised MR can be referred for detailed calculations regarding volume of failed ICL avoided in this grouped project by distribution of LEDs.</p> <p>3.3 PP would like to clarify that the contributions over project lifetime are equivalent to the project contribution in the second monitoring period since SDG contributions from MP-1 (25-March-2021 to 31-May-2022 (inclusive of both dates)) were not included in previously approved monitoring report. Details under column by name of "Contributions over the project lifetime" have been mentioned accordingly in the revised MR being submitted to the VVB.</p> <p><b>4. Section 2.2 of MR;</b> Reference has been removed from the revised MR being submitted to the VVB.</p> <p><b>5. Section 4.3 of MR;</b> PP would like to clarify that there was a third party authorised by the PP to implement the project. Same has been added in section 4.3 of the revised MR being submitted to the VVB.</p>                                                                                                                                                                                                                                                                                     |               |        |             |                   |
| <b>1<sup>st</sup> Assessment by Audit Team</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Status</b> | Closed | <b>Date</b> | 26-September-2023 |
| <p><b>1. Section 1.1 of MR;</b> The assessment team verifies that no LED has been distributed under the MP-2 (01-June-2022 to 30-June-2023). The last LED was installed on 01-May-2023. Hence accepted</p> <p><b>2. Section 1.8 of MR;</b> Assessment team found the footnote and working hyperlink reference by PP. Hence accepted</p> <p><b>3. Section 1.11 of MR;</b></p> <p>3.1 Assessment team confirms that PP has clearly mentioned the number of LEDs distributed over project lifecycle to increase the reliance on clean fuels of the end users in revised MR and evidence was submitted for the same by PP. Hence accepted</p> <p>3.2 The assessment team verifies and confirms that PP has mentioned the actual emission reductions achieved under VCS during the current monitoring period in Table 4- SDG Contributions table in Section 1.11 of the revised MR. Hence accepted</p> <p>3.3 Assessment team confirms that PP has provided the reference for failed ICL and LED replacement in SDG 12. Hence accepted</p> <p><b>4 Section 2.2 of MR;</b> Assessment confirms that PP has submitted the sample feedback form. Hence accepted</p> <p><b>5. Section 4.3 of MR;</b> Assessment team confirms that PP update the statement in revised MR Hence accepted</p> <p>Hence CL#01 is Closed</p> |               |        |             |                   |

|                                           |                  |                                          |
|-------------------------------------------|------------------|------------------------------------------|
| <b>Type</b>                               | <b>Date</b>      | 20-September-2023                        |
| CL#02                                     | <b>Reference</b> | Section of Ver protocol: Section 1,3 & 4 |
| <b>Description of the Non-Conformance</b> |                  |                                          |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |               |             |                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------|-------------|-------------------------------|
| <b>1. Documents to be submitted by PP to verify the MR and project completely</b><br>1.1 Replacement records for current monitoring period<br>1.2 Training records of project as mentioned in SDG target 4.3 table 4 of MR.<br>1.3 NPV Analysis sheet to verifying the additionality of the PAI<br>1.4 DMS record at the time of distribution.<br>1.5 Evidence to verify the spot-checking activities followed for selection of households undertaken during the current monitoring period.                                                                                                                                                                                                                                                                              |  |               |             |                               |
| <b>1<sup>st</sup> Response from PP</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |               | <b>Date</b> | 26-September-2023             |
| 1.1 LED Replacement records in grievance register for current monitoring period has been submitted to the VVB.<br>1.2 Reference to SDG target 4.3 in table 4 of the revised MR has been removed.<br>1.3 NPV Analysis sheet has been submitted to the VVB.<br>1.4 Distribution record has been submitted to the VVB.<br>1.5 PP would like to clarify that the spot check audits were an ongoing activity only in the LED distribution phase of the project (Please refer to Figure 3 – Ex-post monitoring survey approach in the revised MR). Further, the distribution of the project LEDs has been completed on 01-May-2022. Therefore, no spot check audit records are available for the current monitoring period (01-June-2022 to 30-June-2023, both days included). |  |               |             |                               |
| <b>1<sup>st</sup> Assessment by Audit Team</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | <b>Status</b> | Closed      | <b>Date</b> 26-September-2023 |
| Assessment team verifies and confirms that PP has submitted all the supporting documents to verify the project for current monitoring period except the spot check record which is acceptable since no spot check happened in current monitoring period. Hence accepted<br><br>Hence CL#02 is Closed                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |               |             |                               |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------|
| <b>Type</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Date</b>      | <b>29-September-2023</b>                              |
| <b>CL #03</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Reference</b> | <b>Section of Ver protocol: Section 1, 2, 3 and 4</b> |
| <b>Description of the Non-Conformance</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                                                       |
| <ol style="list-style-type: none"> <li><b>Section 1.11-</b> PP to confirm whether the project's ER contribution is still a regulatory surplus as per VCS standards v4.5</li> <li><b>Section 2.1-</b> Please clarify how this is in line with the para 3.18.2 of the VCS standards 4.5.</li> <li><b>Section 3.1 –</b> <ol style="list-style-type: none"> <li>The number of districts mentioned here is 40 while the coordinates mentioned under locations is 21. Please clarify.</li> <li>Is the LED used BIS compliant?</li> </ol> </li> <li><b>Section 3.3-</b> <ol style="list-style-type: none"> <li>PP to clarify how this statement fulfils the criteria of the inclusion criteria of new PAIs or included PAIs.</li> <li>Please state how much does each PAI save?</li> </ol> </li> </ol> |                  |                                                       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------|
| <p><b>5. Section 4.2</b></p> <p>5.1 Please state how much achieved against the target of 10%.</p> <p>5.2 Please provide the computation and the monitoring survey sheet for cross checking purposes.</p> <p><b>6. Section 4.3</b></p> <p>6.1 As per para 27 of the SSC general guidelines, for the survey results to be applicable for MP up to 12 months after the survey date, only if the average lifetime of the units is known and is 4 years or more. PP to clarify how this condition is met.</p> <p>6.2 How are instances which change their homes and reside outside the project boundary treated. What is the mechanism available to robustly record this change.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                        |
| <b>1<sup>st</sup> Response from PP</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Date</b> | <b>04-October-2023</b> |
| <p><b>1. Section 1.11-</b> PP would like to clarify that project 's ER contribution is a regulatory surplus as in line with the clause 3.14.1, <a href="#">VCS standard v4.5</a> regulatory surplus means that for UNFCCC non-Annex countries, project activity shall not be mandated by any systematically enforced law, statute , or other regulatory framework. In India, the project activity, is not mandated by any systematically enforced law, statute, or other regulatory framework. Therefore, project 's ER contribution is a regulatory surplus. PP to confirm whether the project's ER contribution is still a regulatory surplus as per VCS standards v4.5</p> <p><b>2. Section 2.1-</b>PP would like to clarify that no potential negative environmental and socio-economic impacts were found for the current monitoring period. Therefore, no mitigation measures corresponding to the negative impacts have been reported in the monitoring report being submitted to the VVB.</p> <p><b>3. Section 3.1 –</b></p> <p>3.1 Coordinates for all districts in which LEDs have been distributed have been mentioned in Section 1.7 of the MR (Please refer Table 3), which is in line with Section 3.1 of the MR (Please refer Table 6).</p> <p>3.2 PP would like to clarify that 12 W LED is also BIS compliant as per IS 16102 (Part 2): 2012. Same has been added under section 3.1 of the revised MR being submitted to the VVB.</p> <p><b>4. Section 3.3-</b></p> <p>4.1 PP would like to clarify that there are no new PAI under the current monitoring period as the distribution of the LED was completed on 01-May-2022. Further, under each included PAI, the LEDs (7 W and/or 12 W) have replaced ICLs (60 W and/or 100 W). Under each included instance, the LEDs (7 W and/or 12 W) have replaced ICLs (60 W and/or 100 W). As shown below in Table 11, the service level of project LED is between 90% and 150% of the baseline ICLs.</p> <p>4.2 Maximum energy savings from a single PAI are calculated as 1.53 MWh (considering replacement of five 100 W ICLs with five 12 W LEDs in a grid connected household). Individual energy saving from each PAI are calculated in emission reduction spreadsheet being submitted to the VVB (Please refer Column W- Energy Savings Per Instance (MWh) in Year wise ER calculation sheet)</p> <p><b>5. Section 4.2</b></p> |             |                        |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |        |             |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|-------------|-----------------|
| <p>5.1 Precision level of 1.18% was achieved, please refer operating hours calculation spreadsheet. Same has been mentioned in section 4.2 of the revised MR being submitted to the VVB.</p> <p>5.2 Survey Sheet by name of operating hours calculation spreadsheet is being submitted to the VVB.</p> <p><b>6. Section 4.3</b></p> <p>6.1 Average Lifetime of the LED bulbs is considered to be 25,000 hrs. Further considering LED is operational for 9 hours in a day, dividing 25,000 hrs by 9 hours equals to 2778 days or roughly 7 years. Thus, applicability of monitoring survey results for upto 12 months is in line with para 27 of the SSC general guidelines. Further, as per the applied methodology AMS II. C., as per the monitoring requirement specified in the applied methodology, no operational is required to be monitored annually</p> <p>6.2 PP carries out Spot Checking process to report such instances. Instances under which it is reported that LED recipient household is shifted outside project boundary will be removed from the database and ER calculations will be revised accordingly.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |        |             |                 |
| <b>1<sup>st</sup> Assessment by Audit Team</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Status</b> | Closed | <b>Date</b> | 06-October-2023 |
| <p><b>1. Section 1.11-</b> Assessment team verifies and confirms that ER contribution is a regulatory surplus as per clause 3.14.1, VCS standard v4.5. Hence accepted</p> <p><b>2. Section 2.1-</b> Assessment team verifies and confirms that this section was made as per the requirements of VCS standard version 4.5, hence no change was observed although the clarification was submitted by PP which is acceptable to assessment team.</p> <p><b>3. Section 3.1</b> – Assessment team verifies and confirms that PP has updated this section and mentioned the geo co-ordinates for all districts in which LEDs have been distributed have been mentioned in Section 1.7 of the revised MR , hence accepted.</p> <p><b>4. Section 3.3-</b></p> <p>4.1 Assessment team verifies and confirms that no distribution has happened in current monitoring period and same was confirmed through the project installation database, hence no PAIs were added.</p> <p>4.2 Assessment team verifies and confirms that PP has updated the maximum nergy savings value in revised MR which is found acceptable as per the document submitted.</p> <p><b>5. Section 4.2-</b></p> <p>5.1 Assessment team verifies and confirms that PP has mentioned the precision level achieved against the target of 10% in the revised MR, hence accepted</p> <p>5.2 Assessment team confirms that PP has submitted the Survey Sheet by name of operating hours calculation spreadsheet for the purpose of operating hours calculation which is found to be consistent, hence accepted.</p> <p><b>6. Section 4.3</b></p> <p>6.1 As per the clarification and document submitted by PP, the sampling survey result are found to be applicable for the current monitoring period.</p> <p>6.2 As per the Clarification provided by PP and ground practice in case any such incidence happens the beneficiary moving out of project boundary will be removed from</p> |               |        |             |                 |

the database and ERs will automatically be conservative and same has been updated by PP in section 4.3 of MR. Hence accepted.

Hence CL#03 is Closed

|                                          |           |             |            |            |
|------------------------------------------|-----------|-------------|------------|------------|
| Type                                     | Date      | DD/MM/YYYY  |            |            |
| FAR                                      | Reference |             |            |            |
| Description of the Non-Conformance       |           |             |            |            |
|                                          |           |             |            |            |
| 1 <sup>st</sup> Response from PP         |           | Date        | DD/MM/YYYY |            |
|                                          |           |             |            |            |
| 1 <sup>st</sup> Assessment by Audit Team | Status    | Open/Closed | Date       | DD/MM/YYYY |
|                                          |           |             |            |            |

# APPENDIX C: SAMPLING SURVEY SHEET

## QUESTIONNAIRE

1. Sampling Survey Questionnaire employed by Client during Monitoring survey of the samples identified for the preparation of monitoring survey report/27/. PP submitted the same and VKU assessment team has verified the evidences i.e., Sample survey Forms, Sample user survey photo taken during survey/23/

| S. No. | Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | On which date survey was conducted?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2.     | What was the time of the survey?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 3.     | LEDs - info: -<br>a) What is the discom service number?<br>b) What is the model of LEDs?<br>c) Location where the survey was conducted?                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 4.     | What are details of the respondent-<br>a) Name<br>b) Age<br>c) Registered user or not<br>d) In case registered user is not available respondent's relationship with registered user<br>e) Contact details                                                                                                                                                                                                                                                                                                                                                  |
| 5.     | Status and conditions of project LEDs<br>a) Total number of LEDs distributed to the HH?<br>b) LEDs Wattage?<br>c) Number of LEDs found installed?<br>d) The LEDs marked with Shine logo?<br>e) The number of LEDs found installed equal to number of LEDs distributed?<br>f) No of project LEDs found operational and non-operational project?<br>g) The reason for failure of project LEDs?<br>h) Were the damaged /defective project LEDs replaced by PA implementer?<br>i) Damaged /defective project LEDs replaced by (LEDs, CFL, Fluoresce lamp, ICL) |
| 6.     | Replaced of defective/damage project LEDs<br>a) Number of defective /damaged project LEDs replaced<br>b) Is the project logo present on replaced LEDs<br>c) Was replacement undertaken at the time of survey?<br>d) Wattage of replaced LEDs?                                                                                                                                                                                                                                                                                                              |

## 2. Sampling Survey Questionnaire put to use by VKU during Onsite Assessment with End Users/41/

Appendix: 2 Household / Stakeholder's Details for LED visited by Verification Team as per VVB Sample selected

|                                                                                                                                               |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Sr. No.</b>                                                                                                                                |  |
| <b>Household / Stakeholder's name</b><br>(Indicate relationship with owner in case of different person)                                       |  |
| <b>ID of the related sales agreement</b>                                                                                                      |  |
| <b>Location</b> (Village / District / Region / neighbourhood)                                                                                 |  |
| <b>Device Model / Type</b>                                                                                                                    |  |
| <b>Date of purchase and installation</b>                                                                                                      |  |
| <b>ID of the device (If any)</b>                                                                                                              |  |
| <b>Is the baseline Incandescent Lamp in use?</b>                                                                                              |  |
| <b>Is the LED in operation? How many?</b><br>(Mention for each type separately-In case any)                                                   |  |
| <b>Operational hours of LED in use</b><br>(Per day preferentially, other measures allowed and for each type separately)                       |  |
| <b>Rated Power of LED in use</b><br>(Mention for each type separately-In case any)                                                            |  |
| <b>Do you know how to contact CME/PP in case of any problem/complaint/suggestion?</b>                                                         |  |
| <b>How much electricity it saves?</b><br>(% of electricity bill saved/day preferentially, other measures allowed but try to keep homogeneity) |  |
| <b>Opinion of the User</b><br>(Their independent opinion after using the LEDs)                                                                |  |
| <b>The user is happy with the LED.</b><br>(Include any comments of the user)                                                                  |  |
| <b>Signature of the user:</b><br>(If the user doesn't want to sign, respect the decision)                                                     |  |

# APPENDIX D: SCOPE -3 EMISSIONS REQUIREMENTS

## Public Notice for VCS Project 2700

### **SHINE- Distribution of LED Lightbulbs in India-6**

This is to bring to your kind notice that Brightspark Energy Private Limited is implementing a grouped project titled "SHINE- Distribution of LED Lightbulbs in India-6" (VCS ID 2700). It involves the distribution of energy-efficient Light Emitting Diodes (LEDs) to grid-connected households in the state of Uttar Pradesh(east). For this purpose, we had procured LEDs from different manufacturers including SYSKA which were further distributed via Kiosk based approach and direct installation in grid-connected households with support of various distributing agencies. These distribution agencies include JSN Marketing Services, Nirmala Enterprises, Tulsyan Security Services Pvt. Ltd and MB Enterprises.

Verified Carbon Units (VCUs) may be issued for the Greenhouse Gas emission reductions and removals for which Brightspark Energy Private Limited (BEPL) will be claiming carbon credits under VERRA. Based on the existing carbon rights transfer agreement signed between the parties, BEPL will be sharing the carbon credits generated from this grouped project with the project financing entity, i.e., Convergence Energy Services Limited (CESL).

This notice intends to apprise you about the project, to avoid any potential risk of double claiming of Scope 3 emissions under this grouped project.

## Screenshot of Public Statement on C-Quest Capital Website<sup>7</sup>

The screenshot of the email sent to distribution agent to avoid double claiming of Scope 3 Emissions under this grouped project are provided below:

**Neha Oli**

**From:** Sundeep Mittal  
**Sent:** 17 April 2023 20:32  
**To:** jsnmktg17@rediffmail.com  
**Cc:** Tridip Goswami; Siddhartha Pakrashi; Madhurjya Gogoi; Pooja Verma; Akhilesh Joshi; Arun Sharma; Neha Oli; Divyang Suri  
**Subject:** Scope 3 Emission : SHINE- Distribution of LED Lightbulbs in India

**Kind Attention: MJ Khan (Proprietor)**

Dear Sir,

This is to bring to your kind notice that Brightspark Energy Private Limited is implementing grouped projects mentioned below:

- SHINE- Distribution of LED Lightbulbs in India- 3 (VCS ID 2657) in Uttar Pradesh (west)
- SHINE- Distribution of LED Lightbulbs in India-5 (VCS ID 2695) in Bihar
- SHINE- Distribution of LED Lightbulbs in India-6 (VCS ID 2700) in Uttar Pradesh (east)
- SHINE- Distribution of LED Lightbulbs in India-8 (VCS ID 3821) in Karnataka

These projects involve distribution of energy-efficient Light Emitting Diodes (LEDs) to grid-connected households. For this purpose, we had involved your organisation for supplying LEDs to the end users.

Verified Carbon Units (VCUs) may be issued for the greenhouse gas emission reductions and removals for which Brightspark Energy Private Limited (BEPL) will be claiming carbon credits under VERRA. This mail intends to apprise you about the project, to avoid any potential risk of double claiming of Scope 3 emissions under this grouped project.

*Regards,*

**Sundeep Mittal,**

**Project Manager**

**C-Quest Capital Brightspark Energy Pvt Ltd**

Corporate Office: Unit No. 1706-08, 17<sup>th</sup> Floor, Narain Manzil,

Barakhamba Road, Connaught Place, New Delhi - 110001

Regd Add: Level 14 & 15, Concorde Towers, UB City

1 Vittal Malliya Road, Bangalore, Karnataka - 560 001, India

**Mob - +91 9555333414**

Web: <https://cquestcapital.com/>

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<sup>7</sup> <https://cquestcapital.com/latest/public-notice/>

**Screenshot of email sent to representative from Distribution Agency involved in VCS 2700****Neha Oli**

---

**From:** Sundeep Mittal  
**Sent:** 25 April 2023 13:22  
**To:** MB Enterprise  
**Cc:** Tridip Goswami; Siddhartha Pakrashi; Madhurjya Gogoi; Pooja Verma; Akhilesh Joshi; Arun Sharma; Neha Oli; Divyang Suri  
**Subject:** Scope 3 Emission : SHINE- Distribution of LED Lightbulbs in India

**Kind Attention: Sanjib Das (CEO)**

Dear Sir,

This is to bring to your kind notice that Brightspark Energy Private Limited is implementing grouped projects mentioned below:

- SHINE- Distribution of LED Lightbulbs in India- 2 (VCS ID 2608) in Assam and Tripura
- SHINE- Distribution of LED Lightbulbs in India-6 (VCS ID 2700) in Uttar Pradesh (east)
- SHINE- Distribution of LED Lightbulbs in India-8 (VCS ID 3821) in Karnataka

These projects involve distribution of energy-efficient Light Emitting Diodes (LEDs) to grid-connected households. For this purpose, we had involved your organisation for supplying LEDs to the end users.

Verified Carbon Units (VCUs) may be issued for the greenhouse gas emission reductions and removals for which Brightspark Energy Private Limited (BEPL) will be claiming carbon credits under VERRA. This mail intends to apprise you about the project, to avoid any potential risk of double claiming of Scope 3 emissions under this grouped project.

*Regards,*

**Sundeep Mittal,**  
**Project Manager**

**C-Quest Capital Brightspark Energy Pvt Ltd**

Corporate Office: Unit No. 1706-08, 17<sup>th</sup> Floor, Narain Manzil,

Barakhamba Road, Connaught Place, New Delhi - 110001

Regd Add: Level 14 & 15, Concorde Towers, UB City

1 Vittal Malliya Road, Bangalore, Karnataka - 560 001, India

**Mob - +91 9555333414**

Web: <https://cquestcapital.com/>

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# APPENDIX E: COMPETENCE STATEMENTS

## Team Leader and Technical Expert T.A. 3.1



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

### COMPETENCE STATEMENT

|                         |                                                                                              |
|-------------------------|----------------------------------------------------------------------------------------------|
| Name                    | Barun Kumar                                                                                  |
| Nationality             | Indian                                                                                       |
| Countries of Experience | India, South Africa, Kenya, Uganda, DR Congo, Zambia                                         |
| Education Qualification | B.Sc. (Environmental Science & Water Management)<br>M.Sc. (Ecology & Environmental Sciences) |
| Year of Experience      | 12 Years +                                                                                   |
| Area of Expertise       | Climate Change & Environment                                                                 |
| Eligible Sectoral Scope | TA 1.2 - Renewables<br>TA 3.1 - Energy Demand<br>TA 6.1 - Construction<br>TA 7.1 - Transport |

### Roles

|                                |     |
|--------------------------------|-----|
| Project Trainee                | NO  |
| Validator/Verifier Trainee     | NO  |
| Validator                      | NO  |
| Verifier                       | NO  |
| Team Leader                    | YES |
| Technical Reviewer             | YES |
| Local Expert (Country Wise)    | NO  |
| TA Expert (1.2, 3.1, 6.1, 7.1) | YES |
| Financial Expert               | NO  |

|             |                                         |      |            |
|-------------|-----------------------------------------|------|------------|
| Reviewed by | Vandana Gupta (Quality Manager)         | Date | 06/12/2022 |
| Approved by | Vivek Kumar Ahirwar (Technical Manager) | Date | 06/12/2022 |

Validator/Verifier-



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

### COMPETENCE STATEMENT

|                         |                                                                |
|-------------------------|----------------------------------------------------------------|
| Name                    | Shivani Chauhan                                                |
| Nationality             | Indian                                                         |
| Countries of Experience | India                                                          |
| Education Qualification | B.Sc. (Environmental Science)<br>M.Sc. (Environmental Science) |
| Year of Experience      | 2 years as Intern<br>9 months as Employee                      |
| Area of Expertise       | Climate Change & Environment                                   |
| Eligible Sectoral Scope | NA                                                             |

### Roles

|                            |     |
|----------------------------|-----|
| Project Trainee            | NO  |
| Validator/Verifier Trainee | NO  |
| Validator                  | YES |
| Verifier                   | YES |
| Team Leader                | NO  |
| Technical Reviewer         | NO  |
| Local Expert (Country)     | NO  |
| TA Expert (X.X)            | NO  |
| Financial Expert           | NO  |

|                    |                                         |             |            |
|--------------------|-----------------------------------------|-------------|------------|
| <b>Reviewed by</b> | Vandana Gupta (Quality Manager)         | <b>Date</b> | 03.04.2023 |
| <b>Approved by</b> | Vivek Kumar Ahirwar (Technical Manager) | <b>Date</b> | 03.04.2023 |

Validator/Verifier-Trainee-



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

### COMPETENCE STATEMENT

|                         |                                              |
|-------------------------|----------------------------------------------|
| Name                    | Apoorva Tripathi                             |
| Nationality             | Indian                                       |
| Countries of Experience | India                                        |
| Education Qualification | B.Sc. (BCZ)<br>M.Sc. (Environmental Science) |
| Year of Experience      | 8 Months as Project Trainee                  |
| Area of Expertise       | Climate Change & Environment                 |
| Eligible Sectoral Scope | NA                                           |

### Roles

|                             |     |
|-----------------------------|-----|
| Project Trainee             | NO  |
| Validator/Verifier Trainee  | YES |
| Validator                   | NO  |
| Verifier                    | NO  |
| Team Leader                 | NO  |
| Technical Reviewer          | NO  |
| Local Expert (Country Wise) | NO  |
| TA Expert (X.X)             | NO  |
| Financial Expert            | NO  |

|                    |                                         |             |            |
|--------------------|-----------------------------------------|-------------|------------|
| <b>Reviewed by</b> | Vandana Gupta (Quality Manager)         | <b>Date</b> | 04/04/2023 |
| <b>Approved by</b> | Vivek Kumar Ahirwar (Technical Manager) | <b>Date</b> | 04/04/2023 |

## Project Trainee-



Certification Pvt. Ltd.

VKU.F50W: Competence Statement

### COMPETENCE STATEMENT

|                         |                                                        |
|-------------------------|--------------------------------------------------------|
| Name                    | Sanjana Bhana                                          |
| Nationality             | Indian                                                 |
| Countries of Experience | India                                                  |
| Education Qualification | M.Sc. (Environmental Science)<br>B.Sc. (Biotechnology) |
| Year of Experience      | 1+ Year                                                |
| Area of Expertise       | Environmental Compliance Management                    |
| Eligible Sectoral Scope | NA                                                     |

### Roles

|                             |     |
|-----------------------------|-----|
| Project Trainee             | YES |
| Validator/Verifier Trainee  | NO  |
| Validator                   | NO  |
| Verifier                    | NO  |
| Team Leader                 | NO  |
| Technical Reviewer          | NO  |
| Local Expert (Country Wise) | NO  |
| TA Expert (X.X)             | NO  |
| Financial Expert            | NO  |

|                    |                                         |             |            |
|--------------------|-----------------------------------------|-------------|------------|
| <b>Reviewed by</b> | Vandana Gupta (Quality Manager)         | <b>Date</b> | 05/06/2023 |
| <b>Approved by</b> | Vivek Kumar Ahirwar (Technical Manager) | <b>Date</b> | 05/06/2023 |

### Technical Reviewer and Technical Expert T.A. 3.1-



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

#### COMPETENCE STATEMENT

|                         |                                                                           |
|-------------------------|---------------------------------------------------------------------------|
| Name                    | Sanjay Kumar K                                                            |
| Nationality             | Indian                                                                    |
| Countries of Experience | India                                                                     |
| Education Qualification | B.E. (Civil Engineering)<br>M. Tech (Environmental Engineering)           |
| Year of Experience      | 20 Years +                                                                |
| Area of Expertise       | Climate Change & Environment<br>Sustainable Development<br>GHG Footprints |
| Eligible Sectoral Scope | TA 1.2 - Renewables<br>TA 3.1 - Energy Demand<br>TA 6.1 - Construction    |

#### Roles

|                             |     |
|-----------------------------|-----|
| Project Trainee             | NO  |
| Validator/Verifier Trainee  | NO  |
| Validator                   | YES |
| Verifier                    | YES |
| Team Leader                 | YES |
| Technical Reviewer          | YES |
| Local Expert (Country Wise) | YES |
| TA Expert (1.2, 3.1, 6.1)   | YES |
| Financial Expert            | YES |

|                    |                                         |             |            |
|--------------------|-----------------------------------------|-------------|------------|
| <b>Reviewed by</b> | Vandana Gupta (Quality Manager)         | <b>Date</b> | 03.03.2023 |
| <b>Approved by</b> | Vivek Kumar Ahirwar (Technical Manager) | <b>Date</b> | 03.03.2023 |