



# VERIFICATION REPORT

## GRID CONNECTED 25 MW PV SOLAR POWER PROJECT AT CHARANKA IN GUJARAT



South Asia

Document Prepared By

TÜV SÜD South Asia Pvt Ltd

|               |                                                                    |
|---------------|--------------------------------------------------------------------|
| Project Title | GRID CONNECTED 25 MW PV SOLAR POWER PROJECT AT CHARANKA IN GUJARAT |
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|               |                                                                                          |
|---------------|------------------------------------------------------------------------------------------|
| Report Title  | VCS Verification of "GRID CONNECTED 25 MW PV SOLAR POWER PROJECT AT CHARANKA IN GUJARAT" |
| Client        | GMR Gujarat Solar Power Private Limited (GGSPPL)                                         |
| Pages         | 16                                                                                       |
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|                     |                                                                       |
|---------------------|-----------------------------------------------------------------------|
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**Summary:**

TÜV SÜD South Asia Pvt. Ltd. has performed the second verification of the aforementioned VCS project activity. The verification is based on the currently valid documentation of the VCS and United Nations Framework Convention on Climate Change (UNFCCC).

The Verification has been conducted for the monitoring period 01/09/2016 to 31/10/2020.

The verification process includes three phases:

- Desk review of documents;
- On-site audit and follow-up interviews with the relevant personnel;
- Resolution of outstanding issues and the issuance of final verification report and opinion.

The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source. The project involves the implementation of 25 MWp grid connected solar PV power project in Charnaka Gujarat Solar Power Park District Patan in the State of Gujarat by GMR Gujarat Solar Power Private Limited (GGSPPL). The power generated is supplied to the Gujarat Urja Vikas Nigam Limited (GUVNL) replaces the equal amount of power which would have been generated by fossil fuel-intensive thermal power plants in the Indian Grid. The plant was commissioned on 4<sup>th</sup> March 2012.

2 Clarification Requests (CLs) and 2 Corrective Action Requests (CARs) have been raised during the course of verification process and has been successfully closed. No Forward Action Request (FAR) was raised during this monitoring period.

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# 1 INTRODUCTION

## 1.1 Objective

TÜV SÜD has been commissioned by the aforementioned client to perform an independent verification assessment.

The objective of the verification work is to comply with the requirements of Verified Carbon Standards requirements. According to this assessment TÜV SÜD shall:

- ensure that the project activity has been implemented and operated as per the registered PDD, and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place,
- ensure that the published MR and other supporting documents provided are complete, verifiable and in accordance with applicable VCS and CDM VVS requirements,
- ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology,
- evaluate the data recorded and stored as per the applicable requirements.
- assessment of the sustainability monitoring parameters as per the VCS requirements

## 1.2 Scope and Criteria

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of VCS project activities, the scope is set by:

- VCS v4.0 requirements
- Clean Development Mechanism Validation And Verification Standard (VVS) for Project Activities v2.0
- Baselines and monitoring methodologies (including GHG inventories)
- Environmental issues relevant to the applicable sectoral scope
- Current technical and operational knowledge of the specific sectoral scope and information on best practice
- Stakeholder consultation and feedback

The verification process is not meant to provide any form of consulting for the project participant (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for improvement of the project design.

## 1.3 Level of Assurance

The errors identified in the project are below the threshold limit of materiality and hence not material. The GHG emission reductions are calculated without material misstatements.

The VVB confirms that a reasonable level of assurance has been achieved during the verification process.

## 1.4 Summary Description of the Project

The project involves the implementation of 25 MWp grid connected solar PV power project in Charnaka Gujarat Solar Power Park District Patan in the State of Gujarat by GMR Gujarat Solar Power Private Limited (GGSPPL). The power generated is supplied to the Gujarat Urja Vikas Nigam Limited (GUVNL) and replaces the equal amount of power which would have been generated by fossil fuel-intensive thermal power plants in the Indian Grid. The plant was commissioned on 4<sup>th</sup> March 2012.

In the pre-project scenario, in absence of the project activity for generation of same amount of power through fossil fuel (coal/ gas/ oil) based power plants – the currently dominating fuel use for power generation in the Indian grid.

# 2 VERIFICATIONPROCESS

## 2.1 Method and Criteria

The information provided by the project participants is assessed by applying the means of verification specified in the VCS v4, Toolkit and the VVS.

A competent assessment team is selected prior to the start of the verification. The team is selected to cover the technical area(s), sectoral scope(s) and relevant host country experience for evaluating the VCS project activity. Additionally, a competent Technical Reviewer or Technical Reviewer Team is appointed to conduct checks on quality and completeness.

The verification team performs first a desk review, followed by an on-site visit, which results in the formation of a draft report and a list of findings. The next step involves the evaluation of the findings through direct communication with the PPs and then finally the preparation of the verification report. This verification report and other supporting documents then undergo an internal quality control by the CB “Environment and energy” before submission to the VCS.

## 2.2 Document Review

The documents referred during the course of this verification are provided in Appendix 1.

## 2.3 Interviews

The VVB has not conducted the on-site inspection for this current monitoring period due to obligations imposed by COVID 19. However the VVB has ensured that reasonable level of assurance has been achieved as per Verra regulations on the relaxation of mandatory site visits by the VVB due to Covid-19. The VVB has conducted telephonic interviews and video calls to discuss with the client regarding the data and documents pertaining to the current verification period. The interviews and discussions were conducted successfully.

| No. | Interviewee |            |                             | Date       | Subject                         | Team member |
|-----|-------------|------------|-----------------------------|------------|---------------------------------|-------------|
|     | Last name   | First name | Affiliation                 |            |                                 |             |
| 1.  | Kumar       | Gaurav     | GGSPPL                      | 18/12/2020 | Plant technology and monitoring | Eswar Murty |
| 2   | Sharma      | Barun      | EKI Energy Services Limited | 18/12/2020 | CDM Monitoring                  | Eswar Murty |
| 3   | Ghose       | Bibushita  | EKI Energy Services Limited | 18/12/2020 | CDM Monitoring                  | Eswar Murty |

## 2.4 Site Inspections

Please see 2.3

## 2.5 Resolution of Findings

### CL from this verification

| CL ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 01 | Section no. | 1.5, 1.6 of PDD | Date: | 12/01/2021 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|-----------------|-------|------------|
| Description of CL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |             |                 |       |            |
| PP to clarify the below: <ol style="list-style-type: none"> <li>The VCS project crediting period start date is 04/03/2012 since it is the date of commissioning, which has been confirmed in the Validation report by the DOE. However the start date as per Joint PDD &amp; MR as well as the current MR shows as 08/12/2010 (PPA signing date).</li> <li>VCS Crediting Period is 04-March-2012 to 03-March-2022 as per current MR, however the Joint PDD &amp; MR dated 16/10/2018 is not clear on the VCS crediting period. The current monitoring period 01- September-2016 to 31-October-2020 is not reflected in the Joint PDD &amp; MR.</li> </ol> |    |             |                 |       |            |

| Project participant response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | Date: 28/01/2021 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------|
| <p>1. There is a typo error in joint PD &amp; MR. The start date (i.e PPA signing date) mentioned joint PD &amp; MR is as per CDM definition of start date. As per VCS standard, earliest commissioning date is start date, hence VCS MR has mentioned 04/03/2012 as start date of project activity and also start date of crediting period. Deviation is requested in VCS MR for same.</p> <p>2. Joint PDD &amp; MR dated 16/10/2018, has mentioned CDM crediting period as 01 Jan 13 - 30 Aug 19 which is 7 years renewal twice. This is typo error in Joint PDD &amp; MR dated 16/10/2018, regarding mention of CDM crediting period and not mention of VCS crediting period.</p> <p>However as per VCS standard available at the time of project's VCS registration, VCS project crediting period can start from commissioning date and crediting period can be of 10 years with maximum renewal of 2 times. Hence VCS project crediting period is from 04/03/2012 to 03/03/2022 (10 years period) and same can renew twice. Deviation is requested in VCS MR for same.</p> |  |                  |
| Documentation provided by project participant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                  |
| VCS MR Version 02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                  |
| DOE assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | Date: 10/02/2021 |
| <p>The VCS project crediting period start date is 04/03/2012 since it is the date of commissioning, and it has been wrongly mentioned in the Joint PD &amp; MR and a deviation is mentioned in the MR, which has been confirmed by the audit team. VCS project crediting period is from 04/03/2012 to 03/03/2022 (10 years period), which has also been wrongly mentioned in the Joint PD &amp; MR. Hence deviation request mentioned by the PP in the MR can be considered and this issue can be closed.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                  |

| CL ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 02 | Section no. | Date: 12/01/2021 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|------------------|
| Description of CL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |             |                  |
| <p>1. The Sl. Nos of main and check meters is not consistent from the Joint PD &amp; MR and the Current MR. PP to clarify if there was any meter replacement and if so, details to be provided clearly.</p> <p>2. The MR mentions the date of calibration of the main meters as 07/07/2016, while the report submitted is a meter test report and not calibration certificate. The same applies for check meters as well. PP to submit the actual calibration certificates of main and check meters for 2016.</p> |    |             |                  |

|                                                                                                                                                                                                                                                                                                                                                                                 |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                             | <b>Date: 28/01/2021</b> |
| 1. The meters were replaced by new meters on 16/04/2013. The supporting documents has been provided. Also it has been mentioned in MR.<br>2. Calibration certificates are submitted now                                                                                                                                                                                         |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                            |                         |
| Updated MR, Calibration Certificates                                                                                                                                                                                                                                                                                                                                            |                         |
| <b>DOE assessment</b>                                                                                                                                                                                                                                                                                                                                                           | <b>Date: 10/02/2021</b> |
| The meters were replaced on 16/04/2013 and the new main and check meters have been calibrated on 08/02/2013. The same have been calibrated on 07/07/2016 before the start of the monitoring period. PP has submitted the actual calibration certificates of main and check meters. The details of meters replaced have also been provided in the MR. hence the issue is closed. |                         |

### CAR from this verification

|                                                                     |    |                    |  |                         |
|---------------------------------------------------------------------|----|--------------------|--|-------------------------|
| <b>CAR ID</b>                                                       | 01 | <b>Section no.</b> |  | <b>Date: 12/01/2021</b> |
| <b>Description of CAR</b>                                           |    |                    |  |                         |
| PP to provide a simple SLD for metering points in the project       |    |                    |  |                         |
| <b>Project participant response</b>                                 |    |                    |  | <b>Date: 28/01/2021</b> |
| Schematic diagram with metering location has been provided.         |    |                    |  |                         |
| <b>Documentation provided by project participant</b>                |    |                    |  |                         |
| Schematic Diagram of plant                                          |    |                    |  |                         |
| <b>DOE assessment</b>                                               |    |                    |  | <b>Date: 10/02/2021</b> |
| The schematic diagram has been provided. Hence the issue is closed. |    |                    |  |                         |

|                                                                                                                                                      |    |                    |  |                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------|--|-------------------------|
| <b>CAR ID</b>                                                                                                                                        | 02 | <b>Section no.</b> |  | <b>Date: 28/11/2020</b> |
| <b>Description of CAR</b>                                                                                                                            |    |                    |  |                         |
| The ER calculation shows the correction factor applied for delay in calibration, however the MR does not mention the same. PP to revise accordingly. |    |                    |  |                         |
| <b>Project participant response</b>                                                                                                                  |    |                    |  | <b>Date: 28/01/2021</b> |
| Now the same has been mentioned in MR.                                                                                                               |    |                    |  |                         |
| <b>Documentation provided by project participant</b>                                                                                                 |    |                    |  |                         |
| Updated MR                                                                                                                                           |    |                    |  |                         |
| <b>DOE assessment</b>                                                                                                                                |    |                    |  | <b>Date: 10/02/2021</b> |
| MR has been revised to update the correction factors applied. Hence the issue is closed.                                                             |    |                    |  |                         |

## 2.6 Eligibility for Validation Activities

Not applicable

# 3 VALIDATION FINDINGS

## 3.1 Participation under Other GHG Programs

The project activity is registered under CDM with UNFCCC reference number 7128 on 31/08/2012. The project proponent has provided undertaking that it will not claim any GHG credits in any GHG program other than that under VERRA during the current monitoring period.

## 3.2 Methodology Deviations

NA

## 3.3 Project Description Deviations

There are deviations in the current monitoring period with respect to the Joint PD & MR dated 16/10/2018.

1. There is a typo error in joint PD & MR, the start date is mentioned in the joint PD & MR is as per CDM definition of start date. As per VCS standard, earliest commissioning date is the start date, hence VCS MR has mentioned 04/03/2012 as start date of project activity and also start date of crediting period. Accordingly, deviation has been requested in VCS MR for the same. The same has been confirmed by the audit team.

2. Joint PDD & MR dated 16/10/2018, has mentioned CDM crediting period as 01 Jan 13 - 30 Aug 19 which is 7 years renewal twice. This is typo error in Joint PDD & MR regarding mention of CDM crediting period and not mentioning the VCS crediting period. Deviation has been requested in VCS MR for the same and the same has been confirmed by the audit team.

### 3.4 Grouped Project

NA

## 4 VERIFICATION FINDINGS

### 4.1 Project Implementation Status

The project involves the implementation of 25 MWp grid connected solar PV power project in Charnaka Gujarat Solar Power Park District Patan in the State of Gujarat by GMR Gujarat Solar Power Private Limited (GGSPPL). The power generated is supplied to the Gujarat Urja Vikas Nigam Limited (GUVNL) and will replace the equal amount of power which would have been generated by fossil fuel-intensive thermal power plants in the Indian Grid. The plant was commissioned on 4<sup>th</sup> March 2012.

In the pre-project scenario, in absence of the project activity for generation of same amount of power through fossil fuel (coal/ gas/ oil) based power plants – the currently dominating fuel use for power generation in the Indian grid.

The audit team has checked all the commissioning certificate, technical specifications, photographs and maps to confirm the location and the implementation of the project.

Monitoring parameters:

|                              |                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Means of verification</b> | Referring to VCS v4 and p.360, p.361, p.363 and p.364 of CDM VVS PA, v2.0, the below tables provide a summary on the verification of each monitoring parameter listed in the registered monitoring plan. |                                                                                                                                                                                                                                                                                                                                                                                      |
|                              | <b>Data / Parameter:</b>                                                                                                                                                                                 | EG <sub>facility,y</sub>                                                                                                                                                                                                                                                                                                                                                             |
|                              | <b>Data unit:</b>                                                                                                                                                                                        | MWh                                                                                                                                                                                                                                                                                                                                                                                  |
|                              | <b>Description:</b>                                                                                                                                                                                      | Quantity of net electricity generation supplied by the project plant/unit to the grid in year y                                                                                                                                                                                                                                                                                      |
|                              | <b>Source of data used:</b>                                                                                                                                                                              | Joint Meter readings by Project Proponent and GETCO at the interconnection point                                                                                                                                                                                                                                                                                                     |
|                              | <b>Means of verification/Comments:</b>                                                                                                                                                                   | <p>There are 3 main and 3 check meters installed at Transformer 1, 2 and 3 respectively. This net electricity generation value is calculated based on the difference between measured values of “export” and “import” for 3 metering points.</p> <p>The audit team has checked the Joint meter readings from the PP and GETCO and confirmed the values provided in the ER sheet.</p> |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |                                      |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------|
|                   | <table border="1"> <tr> <td data-bbox="430 191 706 226">Cross-check</td><td data-bbox="706 191 1372 226">Electricity Sales invoices submitted</td></tr> </table> <p><b>Compliance with the calibration frequency requirements for measuring instruments</b></p> <p>As per the registered monitoring plan, the meters are to be calibrated once in three years. The meters were replaced on 16/04/2013 and the new main and check meters have been calibrated on 08/02/2013. The same have been calibrated on 07/07/2016 before the start of the monitoring period. PP has submitted the actual calibration certificates of main and check meters. The details of meters replaced have also been provided in the MR. The audit team has checked the calibration certificates and records of the monitoring equipment as given below and found that there is delay in calibration for the main meters for more than 2 months and check meters for 3 months. Accordingly PP has applied necessary correction factors for the delay, and the calculations are found to be conservative. The details of the calibration of meters is given in the table below.</p>                                                                                                                                                                                                                                                                                                                                                                        | Cross-check | Electricity Sales invoices submitted |
| Cross-check       | Electricity Sales invoices submitted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                                      |
| <b>Conclusion</b> | <p>The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD. All parameters were monitored and determined as per the registered monitoring plan. Referring to p.360, p.361, p.363 and p.364 of CDM VVS PA, v2.0, VVB confirms through video call and telephonic interviews and from the document review, the actual monitoring system complies with the registered monitoring plan. The substantiation of this conformity on information flow for these parameters including the values in the monitoring reports is reported in the above section.</p> <p>During the verification, all relevant monitoring parameters of the registered monitoring plan have been verified with regard to the appropriateness of the verification method, the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. After appropriate corrections, carried out by the project participant, it is confirmed that all monitoring parameters have been measured / determined without material misstatements and are in line with all applicable standards and relevant requirements.</p> <p>All parameters required to be monitored are recorded at the intervals required by the registered monitoring plan and the applied methodology. On the basis of review of source and nature of available evidences and records, the verification team confirms the quality of evidence for emission reduction provided is sufficient as per CDM VVS PA, v2.0.</p> |             |                                      |

### Calibration of the meters

| Equipment    | Make    | Serial no | Accuracy | Calibration date         | Valid till               |
|--------------|---------|-----------|----------|--------------------------|--------------------------|
| Main Meter 1 | Wallaby | GJ1819A   | 0.2      | 07/07/2016<br>26/09/2019 | 06/07/2019<br>25/09/2022 |
| Main Meter 2 | Wallaby | GJ1820A   | 0.2      | 07/07/2016<br>25/09/2019 | 06/07/2019<br>24/09/2022 |
| Main Meter 3 | Wallaby | GJ1818A   | 0.2      | 04/08/2016<br>25/09/2019 | 03/08/2019<br>24/09/2022 |

|               |         |            |     |                          |                          |
|---------------|---------|------------|-----|--------------------------|--------------------------|
| Check Meter 1 | Wallaby | HT01131053 | 0.2 | 30/06/2016<br>26/09/2019 | 29/06/2019<br>25/09/2022 |
| Check Meter 2 | Wallaby | HT01131051 | 0.2 | 30/06/2016<br>26/09/2019 | 29/06/2019<br>25/09/2022 |
| Check Meter 3 | Wallaby | HT01131052 | 0.2 | 22/06/2016<br>25/09/2019 | 21/06/2019<br>24/09/2022 |

## 4.2 Safeguards

### 4.2.1 No Net Harm

The project do not have any negative environmental impacts.

### 4.2.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration. As confirmed by PP during interviews, for on-going stakeholders communication, PP has maintained feedback/complaint register at the site office. Local stakeholders can anytime lodge their grievances if any in the register over the operational life time of the project.

During current monitoring period no grievance was received. Thus, assessment team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate."

## 4.3 AFOLU-Specific Safeguards

Not applicable.

## 4.4 Accuracy of GHG Emission Reduction and Removal Calculations

### Calculation of baseline GHG emissions or baseline net GHG removals by sinks

|                              |                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Means of verification</b> | The assessment of data and the calculation of baseline emission reduction in the MR and the ER excel sheet have been verified as per the following set of supporting documents:<br><ol style="list-style-type: none"> <li>1. Export and Import data</li> <li>2. Joint meter readings</li> <li>3. VER spreadsheets</li> <li>4. Sales Invoices</li> </ol> |
| <b>Conclusion</b>            | Calculations applied formulae and method for calculation of baseline emission are in accordance with the registered monitoring plan and are in line with the requirements of the applied methodology.                                                                                                                                                   |

### Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

|                              |                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Means of verification</b> | The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan |
| <b>Conclusion</b>            | Project emissions are zero as per the requirement of the methodology and registered CDM PDD.                                                                                                                                                                                                                                                                                              |

### Calculation of leakage GHG emissions

|                              |                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Means of verification</b> | The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan |
| <b>Conclusion</b>            | Leakage emissions are not applicable according to the applied methodology and registered CDM PDD                                                                                                                                                                                                                                                                                          |

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

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Means of verification</b> | <p>No lack of evidence and missing data were detected during this monitoring period. All values as per the monitoring plan were crosschecked by the verification team against basic monitored data and the calculations were found to be correct. The verification team confirms that all assumptions, emission factors and default values have been correctly justified. All the emission factors, application of maximum permissible errors and default values are explicitly mentioned in the monitoring report. Hence the VVB confirms that the methods and formulae used to obtain the emissions are appropriate.</p> <p>No reporting risks have been identified for the data reported. Troubleshooting procedure, maintenance and calibration of monitoring equipment, monitoring measurements and reporting, record handling and maintenance, reviewing monitored data are available at the plant. All the monitored data are archived partially in electronic and paper form. The data will be kept for the whole crediting period and 2 years after the last crediting period thereby meeting the requirement of the monitoring plan.</p> |
| <b>Conclusion</b>            | <p>The formulae and the methods referred in the MR and the emission reduction calculation spread sheet comply with the methods described in the registered PDD.</p> <p>No lack of evidence and missing data were detected during this monitoring period. All values as per the monitoring plan were crosschecked by the</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>verification team against basic monitored data and the GHG emission calculation is found correct.</p> <p>TUV SUD confirms that all assumptions, emission factors and default values have been correctly justified. All the emission factors and default values are explicitly mentioned in the monitoring report. Calculations applied formulae and method for calculation of GHG emission are in accordance with the registered monitoring plan and are in line with the requirements of VCS, the applied methodology and p. 372, p.373 of CDM VVS PA ver 2.0.</p> |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 4.6 Non-Permanence Risk Analysis

Not applicable.

# 5 VERIFICATION CONCLUSION

The VVB confirms that

- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the project is operated as planned and described in the project design document approved by the EB;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the monitoring plan in Monitoring Report is as per the PDD and monitoring plan approved by the EB;
- the approved monitoring plan in the approved PDD is as per the applied methodology;
- There is an audit trail that contains the evidence and records that validate the stated figures.

Based on the information we have seen and evaluated, we confirm that the project activity achieved the verified amount of reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the project activity

Verification period: From 01 September 2016 to 31 October 2020

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

| 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) |
|------|-----------------------------------------------------|----------------------------------------------------|----------------------------------------|--------------------------------------------------------------|
| 2016 | 13,338                                              | 0                                                  | 0                                      | 13,338                                                       |

|              |                |          |          |                |
|--------------|----------------|----------|----------|----------------|
| 2017         | 36,830         | 0        | 0        | 36,830         |
| 2018         | 36,418         | 0        | 0        | 36,418         |
| 2019         | 35,312         | 0        | 0        | 35,312         |
| 2020         | 29,233         | 0        | 0        | 29,233         |
| <b>Total</b> | <b>151,131</b> | <b>0</b> | <b>0</b> | <b>151,131</b> |

# APPENDIX 1: DOCUMENTS REVIEWED

| No | Author                            | Title                                                                                                                      | References to the document             |
|----|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| 1  | UNFCCC                            | CDM VVS for PA v2.0                                                                                                        |                                        |
| 2  | UNFCCC                            | ACM0002 – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, Version 12 | -                                      |
| 3  | Verra                             | VCS Standard v4.0                                                                                                          | -                                      |
| 4  | GGSPPL                            | VCS MR – Version 2.0                                                                                                       | 28/01/2021                             |
| 5  | GGSPPL                            | ER Calculation sheet Version 2                                                                                             | 28/01/2021                             |
| 6  | Gujarat Energy Development Agency | Commissioning Certificate for 25 MW Solar PV plant at Charanka on 4 <sup>th</sup> March 2012                               | 09/04/2012                             |
| 7  | Yadav Measurements Pvt Ltd        | Calibration test certificates for main meters 1, 2 and 3                                                                   | 26/09/2019<br>25/09/2019<br>25/09/2019 |
| 8  | Yadav Measurements Pvt Ltd        | Calibration test certificates for check meters 1, 2 and 3                                                                  | 26/09/2019<br>26/09/2019<br>25/09/2019 |
| 9  | JA Mehta                          | Calibration test certificates for main meters 1, 2 and 3                                                                   | 07/07/2016<br>07/07/2016<br>04/08/2016 |
| 10 | JA Mehta                          | Calibration test certificates for check meters 1, 2 and 3                                                                  | 30/06/2016<br>30/06/2016<br>22/06/2016 |
| 11 | GGSPPL                            | Plant daily generation data                                                                                                | 2016-20                                |
| 12 | Gujarat SLDC                      | Monthly Joint Metering Reports for export and import from GGSPPL                                                           | 2016-20                                |
| 13 | GGSPPL                            | Site photographs of PV and energy meters                                                                                   |                                        |