



**Verified Carbon  
Standard**

## VCS GROUPED PROJECT FOR RENEWABLE POWER GENERATION BY ESSEL MINING AND INDUSTRIES LIMITED



**INFINITE  
SOLUTIONS**

Document Prepared by Infinite Environmental Solutions Limited

|                          |                                                                                                                                                              |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Project Title</b>     | VCS Grouped Project for Renewable Power Generation by Essel Mining and Industries Limited                                                                    |
| <b>Version</b>           | 04                                                                                                                                                           |
| <b>Report ID</b>         | 1497                                                                                                                                                         |
| <b>Date of Issue</b>     | 07-October- 2024                                                                                                                                             |
| <b>Project ID</b>        | VCS 1497                                                                                                                                                     |
| <b>Monitoring Period</b> | 01-September-2022 to 31-October-2023(including both the dates)                                                                                               |
| <b>Prepared By</b>       | Infinite Environmental Solutions Limited                                                                                                                     |
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# 1 PROJECT DETAILS

## 1.1 Summary Description of the Implementation Status of the Project

Essel Mining & Industries Limited (EMIL) and their group companies (hereafter referred as “project proponent”) have installed Renewable Energy Power Plants based on solar photovoltaic (PV) technology (hereafter referred as “project activity”) at various locations across India as a grouped project activity. EMIL is looking forward to earn carbon credits under VCS mechanism for these solar PV based power plants. The objective of the grouped project activity is to develop a platform for reducing VCS Registration timelines and process costs for registration of individual projects under VCS.

The start date of project activity is 12-March-2014 (which is the commissioning date of first instance included in project activity). The grouped project activity supports development of renewable energy generation plants based on Solar PV technology in India and delivering electricity to the grid or third party through grid. Each instance of project activity under this grouped project consists of one or more renewable power generation plant using solar PV technology.

The renewable energy generation plants under the grouped project activity generates Solar PV based electricity, which otherwise in absence of project activity would have been generated from fossil fuel fired grid connected power plants. The grouped project activity thus leads to reduction in Greenhouse Gas (GHG) emissions.

All the project instances i.e., renewable energy generation plants to be included in this grouped project are from within India only. Hence the location and geographical boundary of the grouped project can be defined as India. The estimated annual emission reductions over a 10-year period from all the project activity instances are 247,123 tCO<sub>2</sub>e/year.

### **Pre project scenario**

There was no power generation activity at the project site prior to implementation of the project activity instances. Therefore, in the absence of the project activity instances, the equivalent amount of electricity would have been generated from the connected/new power plants in the grid, while project activity instances in the proposed grouped project are green field projects. Therein, the main emission source in the pre-project scenario is the power plants connected to the grid and the primary GHG involved is CO<sub>2</sub>.

The project consists of following instances-

| Project activity instances | Project Owner                       | Title of the project activity                                                     | Location                                                                               | Date of Commissioning | PPA                                                  |
|----------------------------|-------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------|
| Instance - 1               | Essel Mining and Industries Limited | VCS Project for Solar Power Plant at Bhadla, Rajasthan                            | Bhadla Solar Park, Village - Bhadla, Tehsil - Bap, District- Jodhpur, Rajasthan India  | 12-March-2014         | Rajasthan Renewable energy corporation Limited       |
| Instance - 2               |                                     | VCS Project for Solar Power plant at Achampet, Telangana                          | 5 MW Solar Power Plant, Achampet Village and Mandal, Dist. Mehaboob Nagar, Telangana   | 07-July-2014          | Central Power Distribution Company of Andhra Pradesh |
| Instance - 3               |                                     | VCS Project for Solar Power Plant at Kalwakurthy, Dist. Mehaboob Nagar, Telangana | Ternikal Village, Kalwakurthy Mandal, Dist. Mehaboob Nagar, Telangana, India.          | 30-June-2014          | Central Power Distribution Company of Andhra Pradesh |
| Instance - 4               |                                     | VCS Project for Solar Power Plant at Salakpur, Telangana                          | Village: Salakpur District: Warangal State: Telangana, India                           | 17-September-2014     | Northern Power Distribution Company of Telangana     |
| Instance - 5               |                                     | VCS Project for Solar Power Plant at Alladurg, Telangana                          | Village: Bhiamramdhibba District: Medak State: Telangana, India                        | 28-July-2014          | Central Power Distribution Company of Andhra Pradesh |
| Instance - 6               | Aditya Birla Solar Limited          | VCS Project for Solar Power Plant at Karnataka                                    | Village: Bellatti, Shirahatti District: Gadag State: Karnataka, India                  | 11-May-2017           | Hubli Electricity Supply company Limited             |
|                            |                                     |                                                                                   | Village: Chandargi, Kaktol, Ramadurg Taluk District: Belagavi, State: Karnataka, India | 12-May-2017           | Hubli Electricity Supply company Limited             |

|               |                                       |                                                              |                                                                                             |                  |                                              |
|---------------|---------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------|----------------------------------------------|
|               |                                       |                                                              | Village: Mulbangal,<br>District: Kolar<br>State: Karnataka,<br>India                        | 13-October-2017  | Bangalore Electricity Supply Company Limited |
|               |                                       |                                                              | Village: Devar Nimbargi,<br>District: Vijayapura<br>State: Karnataka, India                 | 26-March-2018    | Ultratech Cement Limited                     |
| Instance – 7  | Aditya Birla Renewables SPV 1 Limited | VCS Project for Solar Power Plant at Vijayapura              | Village: Devar Nimbargi,<br>District: Vijayapura<br>State: Karnataka, India                 | 26-March-2018    | Grasim Industries Limited                    |
| Instance – 8  |                                       | VCS Project for Solar Power Plant at Hotgi, Maharashtra      | Village: Hotgi, Tal: South Solapur<br>District: Solapur<br>State: Maharashtra, India        | 20-June-2018     | Ultratech Cement Limited                     |
| Instance – 9  |                                       | VCS Project for Solar Power Plant at Gotan, Rajasthan, India | Village: Kharia Khangar, Tehsil: Bhopalgarh<br>District: Jodhpur<br>State: Rajasthan, India | 01-February-2018 | Ultratech Cement Limited                     |
| Instance – 10 |                                       | VCS Project for Solar Power Plant at Sevagram, Gujrat        | Village: Sevagram, Tal: Abdasa<br>District: Kutch<br>State: Gujarat, India                  | 14-August-2018   | Ultratech Cement Limited                     |
| Instance – 11 |                                       | VCS Project for Solar Power Plant at Pune, Maharashtra       | Village: Peth, Tal: Havelim Dist<br>Pune,<br>Maharashtra, India                             | 01-February-2018 | Ultratech Cement Limited                     |

The amount of actual emission reductions generated in this monitoring period are 285,158 tCO<sub>2</sub>e

The audit history is as follows-

| Audit Type | Period                         | Program | VVB Name                         | Number of years              |
|------------|--------------------------------|---------|----------------------------------|------------------------------|
| Validation | 12-March-2014 to 11-March-2024 | VCS     | URS VERIFICATION PRIVATE LIMITED | 10 years, 00 months, 00 days |

|                              |                                                                   |     |                                   |                              |
|------------------------------|-------------------------------------------------------------------|-----|-----------------------------------|------------------------------|
|                              | (including both days)                                             |     |                                   |                              |
| 1 <sup>st</sup> Verification | 12-March-2014 to 20-October-2018 (including both days)            | VCS | Applus                            | 04 years, 07 months, 09 days |
| 2 <sup>nd</sup> Verification | 21-October-2018 to 20-February-2020 (including both days)         | VCS | 4K Earth Science Private Limited  | 1 year, 04 months            |
| 3 <sup>rd</sup> Verification | 21-February-2020 to 31-March-2021 (First and last dates included) | VCS | Earthood Services Private Limited | 01 year, 01 months, 11 days  |
| 4 <sup>th</sup> Verification | 01-April-2021 to 31-August-2022 (including both days)             | VCS | <u>Applus</u>                     | 1 year, 5 months, 00 days    |
| 5 <sup>th</sup> Verification | 01-September-2022 to 31-October-2023 (Including both the days)    | VCS | <u>VKU Certification</u>          | 1 year, 2 months 00 days     |
| Total                        | 12-March-2014 to 31-October-2023 (Including both the days)        | VCS |                                   | 9 years, 7 months, 20 days   |

## 1.2 Sectoral Scope and Project Type

The project activity under consideration is a grouped project activity. The project activity instances as part of the grouped project has the following sectoral scope, project type and methodologies:

**Sectoral Scope Applicable to project:** 01 – Energy Industries (renewable/non-renewable Sources)

### Project Type: I – Renewable Energy Projects

For Large Scale Project activity instances as per CDM terminology i.e., project activity instances with capacity more than 15 MW: (ACM0002) Grid-connected electricity generation from renewable sources (Version 16.0) (EB 81, Annex 9)<sup>1</sup>

For small scale project activity instances as per CDM terminology i.e., project activity instances with capacity less than 15 MW: (AMS-I. D) Grid connected renewable electricity generation (Version 18.0) (EB 81, Annex 24)<sup>2</sup>

For small scale project activity instances as per CDM terminology i.e., project activity instances with capacity less than 15 MW: AMS-I.F.: Renewable electricity generation for captive use and mini-grid --- Version 3.0<sup>3</sup>

## 1.3 Project Proponent

|                   |                                                                                    |
|-------------------|------------------------------------------------------------------------------------|
| Organization name | Essel Mining and Industries Limited <sup>4</sup>                                   |
| Contact person    | Surajit Chanda                                                                     |
| Title             | Authorized Signatory                                                               |
| Address           | 4C, Aditya Birla Centre, SK Ahire Marg, Mumbai – 400 030 (Maharashtra) INDIA       |
| Telephone         | +91-9873722454                                                                     |
| Email             | <a href="mailto:Surajit.chanda@adityabirla.com">Surajit.chanda@adityabirla.com</a> |

|                   |                            |
|-------------------|----------------------------|
| Organization name | Aditya Birla Solar Limited |
| Contact person    | Surajit Chanda             |

<sup>1</sup> <http://cdm.unfccc.int/methodologies/DB/EY2CL7RTEHRC9V6YQHLAR6MJ6VEU83>

<sup>2</sup> <http://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTFQQOFQQH4SBK>

<sup>3</sup> <http://cdm.unfccc.int/methodologies/DB/9KJWQ1G0WEG6LKHX21MLPS8BQR7242>

<sup>4</sup> This organization is acting as PP for all project activity instances. However the owner of each project activity instances is mentioned in the PD. Along with Essel Mining & Industries Limited, the other owners are Aditya Birla Solar Limited, Aditya Birla Renewables Limited and Aditya Birla Renewables SPV 1 Limited.

|                  |                                                                                    |
|------------------|------------------------------------------------------------------------------------|
| <b>Title</b>     | Authorized Signatory                                                               |
| <b>Address</b>   | 4C, Aditya Birla Centre, SK Ahire Marg, Mumbai – 400 030 (Maharashtra) INDIA       |
| <b>Telephone</b> | +91-9873722454                                                                     |
| <b>Email</b>     | <a href="mailto:Surajit.chanda@adityabirla.com">Surajit.chanda@adityabirla.com</a> |

|                          |                                                                                    |
|--------------------------|------------------------------------------------------------------------------------|
| <b>Organization name</b> | Aditya Birla Renewables Limited                                                    |
| <b>Contact person</b>    | Surajit Chanda                                                                     |
| <b>Title</b>             | Authorized Signatory                                                               |
| <b>Address</b>           | 4C, Aditya Birla Centre, SK Ahire Marg, Mumbai – 400 030 (Maharashtra) INDIA       |
| <b>Telephone</b>         | +91-9873722454                                                                     |
| <b>Email</b>             | <a href="mailto:Surajit.chanda@adityabirla.com">Surajit.chanda@adityabirla.com</a> |

|                          |                                                                                    |
|--------------------------|------------------------------------------------------------------------------------|
| <b>Organization name</b> | Aditya Birla Renewables Spv1 Limited                                               |
| <b>Contact person</b>    | Surajit Chanda                                                                     |
| <b>Title</b>             | Authorized Signatory                                                               |
| <b>Address</b>           | 4C, Aditya Birla Centre, SK Ahire Marg, Mumbai – 400 030 (Maharashtra) INDIA       |
| <b>Telephone</b>         | +91-9873722454                                                                     |
| <b>Email</b>             | <a href="mailto:Surajit.chanda@adityabirla.com">Surajit.chanda@adityabirla.com</a> |

## 1.4 Other Entities Involved in the Project

|                            |                            |
|----------------------------|----------------------------|
| <b>Organization name</b>   | Infinite Solutions Limited |
| <b>Role in the Project</b> | Carbon Consultant          |

|                |                                                                              |
|----------------|------------------------------------------------------------------------------|
| Contact person | Jimmy Sah                                                                    |
| Title          | Project Manager                                                              |
| Address        | 214-215 Milinda Manor, Opp. Next Treasure Island, 2 RNT Marg, Indore- 452001 |
| Telephone      | +91-731-4050174                                                              |
| Email          | <a href="mailto:jimmy@infisolutions.org">jimmy@infisolutions.org</a>         |

## 1.5 Project Start Date

The first project activity instance of the grouped project under consideration was commissioned and power generation started on 12-March-2014 at Bhadla in District Jodhpur (project instance 1) in the state of Rajasthan in India. Hence the project start date is defined as follows:

Project start date: 12-March-2014.

## 1.6 Project Crediting Period

Project crediting period for grouped project activity is taken as 10 years renewable twice. Accordingly, the start date of the crediting period is 12-March-2014 and end date is 11-March-2024.

## 1.7 Project Location

All the project activity instances in the grouped project activity would be located within geographical boundaries of Republic of India. Thus, geographical area of grouped project is India.

The geographical boundary is delineated in the form of extreme geographic coordinates as follows:

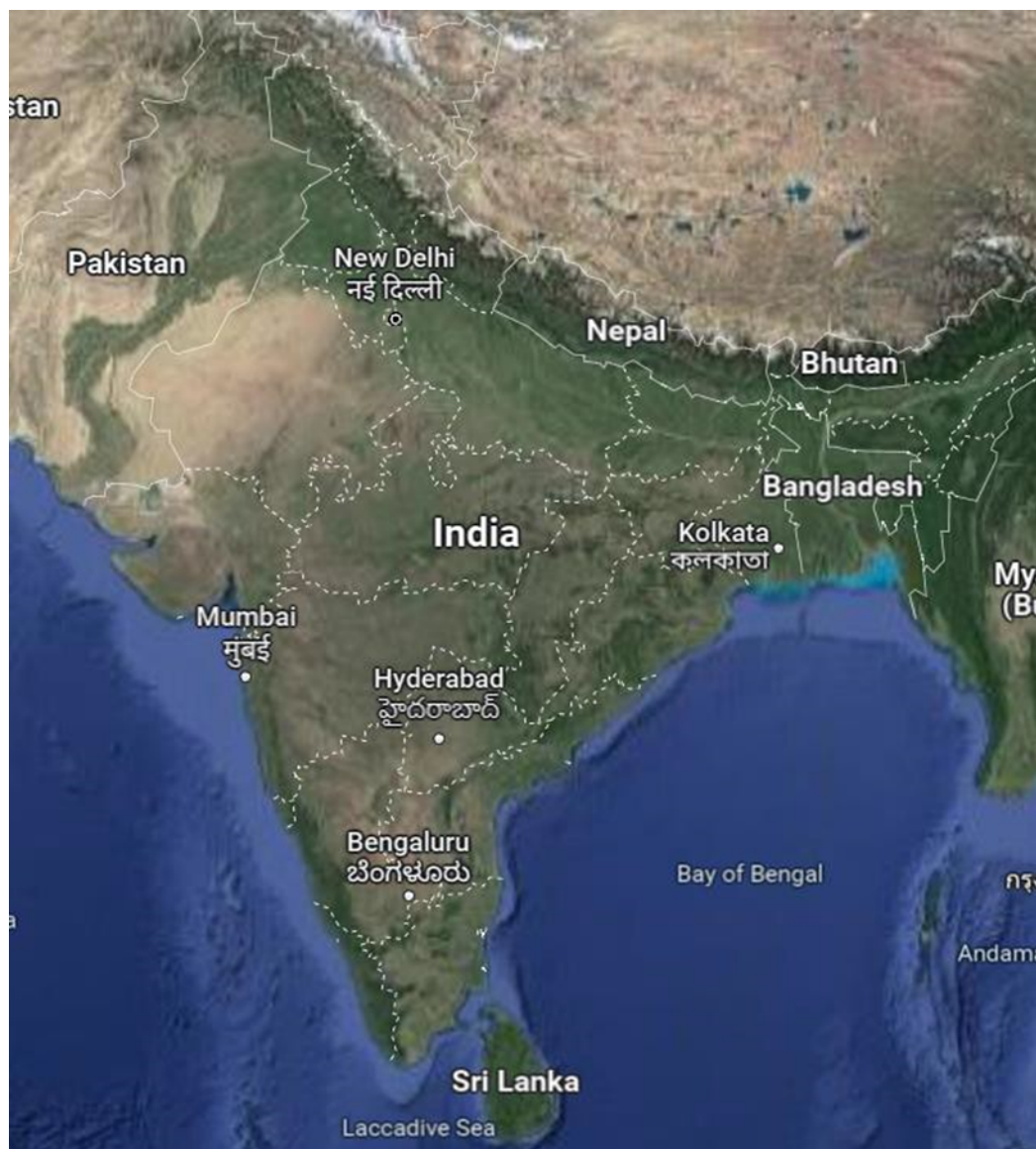
North: 33.24902° N 76.82704° E

South: 6.74678° N 93.84260° E

East: 27.12622° N 97.16712° E

West: 23.71307° N 68.03215° E

The map is as indicated in the following figure.



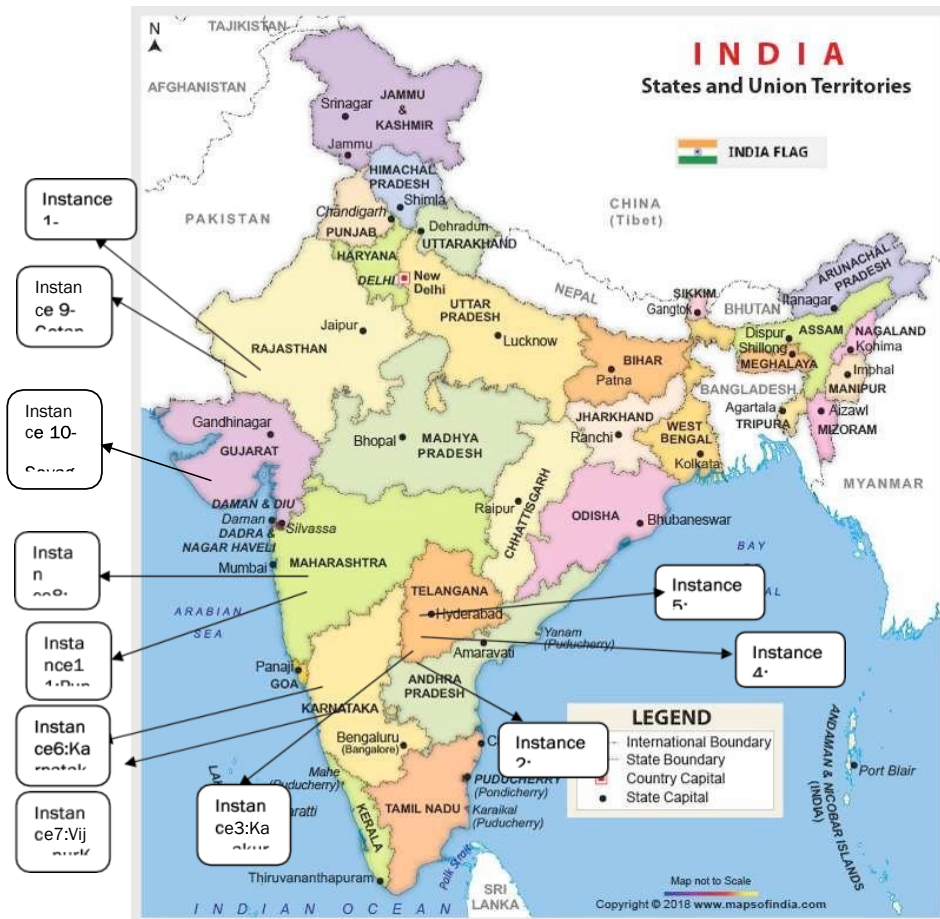
The geographic boundaries, geo-coordinates for project activity instance included in the grouped project activity are as follows:

| Project activity instances | Title of the project activity                          | Location                                                                               | Project Owner                    | Geo Coordinates                                   |
|----------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------|
| Instance – 1<br>Bhadla     | VCS Project for Solar Power Plant at Bhadla, Rajasthan | Bhadla Solar Park, Village – Bhadla, Tehsil – Bap, District – Jodhpur, Rajasthan India | Essel Mining and Industries Ltd. | Latitude: 27 ° 31'10"N<br>Longitude: 71 ° 55'47"E |

|                             |                                                                                   |                                                                                              |                            |                                                      |
|-----------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------|
| Instance – 2<br>Achampet    | VCS Project for Solar Power plant at Achampet, Telangana                          | 5 MW Solar Power Plant, Achampet Village and Mandal, Dist. Mehaboob Nagar, Telangana, India. |                            | Latitude: 16° 23'28.0"N<br>Longitude: 78° 39'45.0"E  |
| Instance – 3<br>Kalwakurthy | VCS Project for Solar Power Plant at Kalwakurthy, Dist. Mehaboob Nagar, Telangana | Ternikal Village, Kalwakurthy Mandal, Dist. Mehaboob Nagar, Telangana, India.                |                            | Latitude: 16° 37'23.0"N<br>Longitude: 78° 28'26.0"E  |
| Instance – 4<br>Salakpur    | VCS Project for Solar Power Plant at Salakpur, Telangana                          | Village: Salakpur<br>District: Warangal<br>State: Telangana, India                           |                            | Latitude: 17° 54'09.0"N<br>Longitude: 79° 01'47.0"E  |
| Instance – 5<br>Alladurg    | VCS Project for Solar Power Plant at Alladurg, Telangana                          | Village: Bharamdhibba<br>District: Medak<br>State: Telangana, India                          |                            | Latitude: 17° 56'48.0"N<br>Longitude: 77° 55'39.0"E  |
| Instance – 6<br>Karnataka   | VCS Project for Solar Power Plant at Karnataka                                    | Village: Bellatti, Shirahatti District: Gadag State: Karnataka, India                        | Aditya Birla Solar Limited | Latitude: 15° 5'12.19"N<br>Longitude: 75° 37'45.37"E |
|                             |                                                                                   | Village: Chandargi, Kaktol, Ramadurg Taluk District: Belagavi State: Karnataka, India        |                            | Latitude: 16° 1'15.60"N<br>Longitude: 75° 7'37.20"E  |

|                              |                                                                          |                                                                                                     |                                                |                                                           |
|------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------|
|                              |                                                                          | Village:<br>Mulbangal,<br>District: Kolar<br>State: Karnataka,<br>India                             |                                                | Latitude:13°05'04.4" N,<br>Longitude:78°17'28.8" E        |
|                              |                                                                          | Village: Devar<br>Nimbargi, District:<br>Vijayapura State:<br>Karnataka, India                      |                                                | Latitude: 17°15'1.53"N<br>Longitude:75°39'38.69"E         |
| Instance – 7<br>Bijapur      | VCS Project for<br>Solar Power<br>plant at<br>Vijayapura                 | Village: Devar<br>Nimbargi, District:<br>Vijayapura State:<br>Karnataka, India                      |                                                | Latitude: 17°15'1.53"N<br>Longitude:75°39'38.69"E         |
| Instance – 8<br>Hotgi        | VCS Project for<br>Solar Power<br>Plant at Hotgi,<br>Maharashtra         | Village: Hotgi, Tal<br>South Solapur<br>District: Solapur<br>State:<br>Maharashtra,<br>India        |                                                | Latitude: 17°33'34.33"N<br>Longitude:75°39'46.79"E        |
| Instance – 9<br>Gotan        | VCS Project for<br>Solar Power<br>Plant at Gotan,<br>Rajasthan,<br>India | Village: Kharia<br>Khangar, Tehsil:<br>Bhopalgar<br>District: Jodhpur<br>State: Rajasthan,<br>India | Aditya Birla<br>Renewables<br>SPV 1<br>limited | Latitude:26°36'25" N,<br>Longitude:73°41'33"E             |
| Instance –<br>10<br>Sevagram | VCS Project for<br>Solar Power<br>Plant at<br>Sevagram,<br>Gujrat        | Village: Sevagram,<br>Tal- Abdasa<br>District: Kutch<br>State: Gujarat,<br>India                    |                                                | Latitude:23°25'44.55" N,<br>Longitude:68°42'13.17"E       |
| Instance –<br>11 Pune        | VCS Project<br>for Solar<br>Power Plant at<br>Pune,<br>Maharashtra       | Village: Peth, Tal<br>Haveli, Dist Pune,<br>Maharashtra,<br>India                                   |                                                | Latitude: 18°29'40.1712"<br>N<br>Longitude:74°5'59.8128"E |

These project activity instances can be represented on the map as follows:



## 1.8 Title and Reference of Methodology

The project activity instances as part of the grouped project activity are either small scale project activity instances with power generation capacity less than 15 MW or large-scale project activity instances with power generation capacity more than 15 MW as per CDM terminology. Accordingly, one of the following methodologies is used for each of the project activity instance based on its capacity.

**For Small Scale Project Activity Instances (including instance – 2 to 5 and instance 7):**

The methodology for small scale project activity instances is the approved methodology for small-scale CDM project activities. The details of the methodology are as follows:

**Methodology:** AMS.I.D

**Project Type:** Type-I: Renewable Energy Projects

**Title:** Grid connected renewable electricity generation

**Version No.:** Version 18; EB 81

**Reference:** CDM Methodologies:

<http://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTXFQ00FQ0H4SBK>

**For Small Scale Project Activity Instances (including instance – 8 to 11):**

The methodology for small scale project activity instances is the approved methodology for small-scale CDM project activities. The details of the methodology are as follows:

**Methodology:** AMS.I. F

**Project Type:** Type-I: Renewable Energy Projects

**Title:** Renewable electricity generation for captive use and mini-grid

**Version No.:** Version 3; EB 81

**Reference:** CDM Methodologies:

<http://cdm.unfccc.int/methodologies/DB/9KJWQ1GOWEG6LKHX21MLPS8BQR7242>

**The methodology refers to following CDM Tools:**

- Tool to calculate emission factor for an electricity system (Version 05.0) (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v5.0.pdf>)
- Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (Version 02) (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v2.pdf>)
- Tool to determine the remaining lifetime of equipment (Version 01) (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-10-v1.pdf>)
- Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period (Version 03.0.1) (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf>)

**For Large Scale Project Activity Instances (including instance – 1 and 6):**

The methodology for large scale project activity instances is the approved methodology for large-scale CDM project activities. The details of the methodology are as follows:

**Methodology:** ACM0002

**Project Type:** Type-I: Renewable Energy Projects

**Title:** Grid-connected electricity generation from renewable sources

**Version No.:** Version 16; EB 81

**Reference:** CDM Methodology:

<http://cdm.unfccc.int/methodologies/DB/EY2CL7RTEHRC9V6YQHLAR6MJ6VEU83>

The methodology refers to following CDM Tools:

- Tool for the demonstration and assessment of additionality (Version 07.0.0) (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01- v7.0.0.pdf> )
- Combined tool to identify the baseline scenario and demonstrate additionality (Version 06.0) (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am- tool-02-v6.0.pdf> )
- Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (Version 02) (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am- tool-03-v2.pdf> )
- Tool to calculate emission factor for an electricity system (Version 05.0) (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07- v5.0.pdf> )
- Tool to determine the remaining lifetime of equipment (Version 01) (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-10-v1.pdf> )
- Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period (Version 03.0.1) (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11- v3.0.1.pdf> )

## 1.9 Participation under other GHG Programs

The project has neither been registered nor seeking registration under any other GHG programs. The project is seeking registration only in VCS program and can be confirmed from no double counting declaration by PP which is submitted herewith.

## 1.10 Other Forms of Credit and Supply Chain (Scope 3) Emissions

### Emissions Trading Programs and Other Binding Limits

Net GHG emission reductions or removals generated by the Project is not being used for compliance with an emissions trading program or to meet binding limits on GHG emissions in any Emission Trading program or other binding limits.

### Other Forms of Environmental Credit

The Project has no intend to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program as confirmed by the project proponent through the declaration of no double counting.

- Furthermore, the project activity is not availing any benefits from CDM/GS/GCC/UCR/RECs mechanism which can be confirmed from the links below:

[https://www.recregistryindia.nic.in/index.php/publics/accredited\\_regens](https://www.recregistryindia.nic.in/index.php/publics/accredited_regens)

[CDM: CDM-Home \(unfccc.int\)](http://cdm.unfccc.int)

<https://www.goldstandard.org/>

<https://projects.globalcarboncouncil.com/>

<https://www.ucarbonregistry.io/>

[Registries | I-REC Standard \(irecstandard.org\)](https://www.irecstandard.org/)

- The project Activity is solar grouped power project and does not involve any supply chain in the project such as manufacturers, wholesalers, distributors and retailers. So, no indirect upstream and downstream GHG emissions are involved in the project activity. Thus, the Scope 3 emissions are not applicable in this project activity.

## 1.11 Sustainable Development Contributions

The grouped project activity as a whole would contribute towards sustainable development of the host country India. The key sustainable development benefits because of the grouped project are outlined as follows:

**Social Well-being:** Installation of the project generates direct and indirect employment opportunities in the nearby areas of the project sites. Generation of employment opportunities help in poverty alleviation, improvement in standard of living etc. of nearby communities hence contributing towards social well-being of local communities.

**Environmental Well-being:** Each of the individual plants under the project activity generates renewable electricity through solar PV based power generation system. Use of solar PV technology for electricity generation does not emit any GHG emissions. In the absence of project activity, the equivalent amount of electricity would be generated through grid connected fossil fuel fired power plants, thereby leading to increase in GHG and other SO<sub>x</sub>, NO<sub>x</sub> emissions. As such it is implied that the proposed grouped project would not generate any negative environmental footprint hence leading to environmental well-being.

**Economic well-being:** Installation and operation of project activity instances as part of the grouped project generates employment and business opportunities hence contributing towards economic well-being of the local communities.

**Technological well-being:** Power generation through solar PV technology is environmentally safe and sound technology. Also, there are no harmful emissions while operation of the plant. Hence this technology is amongst the cleanest sources of power generation among the other power generation technologies available in the country. The project activity helps in diffusion of the cleaner technology in the country for power generation. This leads to technological wellbeing in power generation sector in India.

Table 1: Sustainable Development Contributions

| Row number                           | SDG Target     | SDG Indicator                                                       | Net Impact on SDG Indicator        | Current Project Contributions                                                                                                                                                       | Contributions Over Project Lifetime                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   |              |                                  |                |                                     |                |                                   |             |                                 |             |                                      |               |
|--------------------------------------|----------------|---------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------|----------------------------------|----------------|-------------------------------------|----------------|-----------------------------------|-------------|---------------------------------|-------------|--------------------------------------|---------------|
| 1)                                   | 7.2            | 7.2.1: Renewable energy share in the total final energy consumption | Implemented activities to increase | About 290,794.97 MWh renewable electricity was supplied to the Indian grid during the current monitoring period that helps to increase the renewable energy share in the energy mix | <div>The annual estimated clean energy generation from the project activity over its entire lifetime is 1,832,298.90 MWh.</div> <table><thead><tr><th>Monitoring period</th><th>Contribution</th></tr></thead><tbody><tr><td>12-March-2014 to 20-October-2018</td><td>576,976.06 MWh</td></tr><tr><td>21-October-2018 to 20-February-2020</td><td>347,783.87 MWh</td></tr><tr><td>21-February-2020 to 31-march-2021</td><td>278,222 MWh</td></tr><tr><td>01-April-2021 to 31-August-2022</td><td>338,522 MWh</td></tr><tr><td>01-September-2022 to 31-October-2023</td><td>290,794.97MWh</td></tr></tbody></table> | Monitoring period | Contribution | 12-March-2014 to 20-October-2018 | 576,976.06 MWh | 21-October-2018 to 20-February-2020 | 347,783.87 MWh | 21-February-2020 to 31-march-2021 | 278,222 MWh | 01-April-2021 to 31-August-2022 | 338,522 MWh | 01-September-2022 to 31-October-2023 | 290,794.97MWh |
| Monitoring period                    | Contribution   |                                                                     |                                    |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                   |              |                                  |                |                                     |                |                                   |             |                                 |             |                                      |               |
| 12-March-2014 to 20-October-2018     | 576,976.06 MWh |                                                                     |                                    |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                   |              |                                  |                |                                     |                |                                   |             |                                 |             |                                      |               |
| 21-October-2018 to 20-February-2020  | 347,783.87 MWh |                                                                     |                                    |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                   |              |                                  |                |                                     |                |                                   |             |                                 |             |                                      |               |
| 21-February-2020 to 31-march-2021    | 278,222 MWh    |                                                                     |                                    |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                   |              |                                  |                |                                     |                |                                   |             |                                 |             |                                      |               |
| 01-April-2021 to 31-August-2022      | 338,522 MWh    |                                                                     |                                    |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                   |              |                                  |                |                                     |                |                                   |             |                                 |             |                                      |               |
| 01-September-2022 to 31-October-2023 | 290,794.97MWh  |                                                                     |                                    |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                   |              |                                  |                |                                     |                |                                   |             |                                 |             |                                      |               |

| 2)                                   | 13.0                       | Tonnes of greenhouse gas emissions avoided or removed | Implemented activities to increase | By supplying 290,794.97 MWh clean electricity to Indian grid, the project avoided release of 285,158 tCO <sub>2</sub> e in to the atmosphere during the reporting period.                                                                                                                                | Prevented the release of 1,797,463 tCO <sub>2</sub> e into the atmosphere. Electricity generation from clean energy (Solar energy) resources leads to low greenhouse gases emission along with supplying affordable, clean electricity                                                                                                                                                                                                                                                                        |                   |              |                                  |                            |                                     |                            |                                   |                            |                                 |                            |                                      |                            |
|--------------------------------------|----------------------------|-------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------|----------------------------------|----------------------------|-------------------------------------|----------------------------|-----------------------------------|----------------------------|---------------------------------|----------------------------|--------------------------------------|----------------------------|
|                                      |                            |                                                       |                                    |                                                                                                                                                                                                                                                                                                          | <table><tr><th>Monitoring period</th><th>Contribution</th></tr><tr><td>12-March-2014 to 20-October-2018</td><td>565,556 tCO<sub>2</sub>e</td></tr><tr><td>21-October-2018 to 20-February-2020</td><td>340,942 tCO<sub>2</sub>e</td></tr><tr><td>21-February-2020 to 31-march-2021</td><td>272,745 tCO<sub>2</sub>e</td></tr><tr><td>01-April-2021 to 31-August-2022</td><td>333,062 tCO<sub>2</sub>e</td></tr><tr><td>01-September-2022 to 31-October-2023</td><td>285,158 tCO<sub>2</sub>e</td></tr></table> | Monitoring period | Contribution | 12-March-2014 to 20-October-2018 | 565,556 tCO <sub>2</sub> e | 21-October-2018 to 20-February-2020 | 340,942 tCO <sub>2</sub> e | 21-February-2020 to 31-march-2021 | 272,745 tCO <sub>2</sub> e | 01-April-2021 to 31-August-2022 | 333,062 tCO <sub>2</sub> e | 01-September-2022 to 31-October-2023 | 285,158 tCO <sub>2</sub> e |
| Monitoring period                    | Contribution               |                                                       |                                    |                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |              |                                  |                            |                                     |                            |                                   |                            |                                 |                            |                                      |                            |
| 12-March-2014 to 20-October-2018     | 565,556 tCO <sub>2</sub> e |                                                       |                                    |                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |              |                                  |                            |                                     |                            |                                   |                            |                                 |                            |                                      |                            |
| 21-October-2018 to 20-February-2020  | 340,942 tCO <sub>2</sub> e |                                                       |                                    |                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |              |                                  |                            |                                     |                            |                                   |                            |                                 |                            |                                      |                            |
| 21-February-2020 to 31-march-2021    | 272,745 tCO <sub>2</sub> e |                                                       |                                    |                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |              |                                  |                            |                                     |                            |                                   |                            |                                 |                            |                                      |                            |
| 01-April-2021 to 31-August-2022      | 333,062 tCO <sub>2</sub> e |                                                       |                                    |                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |              |                                  |                            |                                     |                            |                                   |                            |                                 |                            |                                      |                            |
| 01-September-2022 to 31-October-2023 | 285,158 tCO <sub>2</sub> e |                                                       |                                    |                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |              |                                  |                            |                                     |                            |                                   |                            |                                 |                            |                                      |                            |
| 3)                                   | 8.0                        | Employment of local men and women                     | Implemented activities to increase | No new employees were employed during current monitoring period. However, 66 employees are working in the project activity. 14 trainings were conducted on each site during current monitoring period.<br><br>The evidence is mentioned in Appendix-2 and supporting documents is submitted to verifier. | No new employees were employed during current monitoring period. However, 66 employees are working in the project activity. 14 trainings were conducted on each site during current monitoring period.<br><br>Before this monitoring period this contribution was not claimed                                                                                                                                                                                                                                 |                   |              |                                  |                            |                                     |                            |                                   |                            |                                 |                            |                                      |                            |

## 2 SAFEGUARDS

### 2.1 No Net Harm

Solar power is one of the cleanest sources of renewable energy, with no associated emissions and waste products. As per the Schedule 1 of Ministry of Environment, Forests and Climate Change (Government of India) notification dated 14-September-2006, solar power projects do not require an Environmental Impact Assessment.

The report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE dated September 2013 clearly mentioned that solar project activity operations do not result in direct air pollution, noise pollution. Please refer below web link for the same.

<https://smartnet.niua.org/sites/default/files/resources/report-on-developmental-impacts-of-RE.pdf>

Thus, there are no any significant impacts due to implementation of project activity on air, water, soil quality and ambience are envisaged due to the project activity.

Hence it can be concluded that there are no negative impacts associated with the mentioned Project.

### 2.2 Local Stakeholder Consultation

The project proponents organized stakeholders meeting in order to take into account the concerns of the nearby villagers regarding the project implementation. As a part of continuous feedback from stakeholders, there were no other major comments or protest raised by the stakeholders and they were totally in support for setting up of these kinds of projects in the region. For the VCS grouped project activity under consideration, stakeholder consultation was held at each of the project activity instance site. Relevant outcomes from respective stakeholder consultations for each of the eleven-project activity instance are provided as follows:

**Instance – 1: Bhadla:** The stakeholder meeting for the VCS project activity instance -1 at Bhadla was held at the plant site on 12-September- 2015. Stakeholders were invited for the meeting by sending invitations in the form of notification in newspapers (public notice was published in Dainik Bhaskar on 28-August-2015) and by personalized invitations to key stakeholders such as government officials, panchayat representatives and other relevant organizations. Newspaper notification was published in local newspaper in local language and in English. Comments received from stakeholders during the meeting have been documented in the minutes of meeting document.

There were no negative comments received during the meeting and stakeholders appreciated proactive efforts taken by project proponent towards reducing emissions.

**Instance – 2: Achampet:** The stakeholder meeting for the VCS project activity instance 2 at Achampet was held at the plant site on 14-September-2015. Stakeholders were invited for the meeting by sending invitations in the form of notification in newspapers and by personalized

invitations to key stakeholders such as government officials, panchayat representatives and other relevant organizations. Newspaper notification was published in newspaper – The Hindu on 26-August-2015 in local language and in English. Comments received from stakeholders during the meeting have been documented in the minutes of meeting document.

There were no negative comments received during the meeting and stakeholders appreciated proactive efforts taken by project proponent towards reducing emissions.

**Instance – 3: Kalwakurthy:** The stakeholder meeting for the VCS project activity instance-3 at Kalwakurthy was held at the plant site on 14-September-2015. Stakeholders were invited for the meeting by sending invitations in the form of notification in newspapers and by personalized invitations to key stakeholders such as government officials, panchayat representatives and other relevant organizations. Newspaper notification was published in newspaper – The Hindu on 26-August-2015 in local language and in English. Comments received from stakeholders during the meeting have been documented in the minutes of meeting document.

There were no negative comments received during the meeting and stakeholders appreciated proactive efforts taken by project proponent towards reducing emissions.

**Instance – 4: Salakpur:** The stakeholder meeting for the VCS project activity instance -4 at Salakpur was held at the plant site on 15-September-2015. Stakeholders were invited for the meeting by sending invitations in the form of notification in newspapers and by personalized invitations to key stakeholders such as government officials, panchayat representatives and other relevant organizations. Newspaper notification was published in newspaper – The Hindu on 26-August-2015 in local language and in English. Comments received from stakeholders during the meeting have been documented in the minutes of meeting document.

There were no negative comments received during the meeting and stakeholders appreciated proactive efforts taken by project proponent towards reducing emissions.

**Instance – 5: Alladurg:** The stakeholder meeting for the VCS project activity instance -5 at Alladurg was held at the plant site on 16-September-2015. Stakeholders were invited for the meeting by sending invitations in the form of notification in newspapers and by personalized invitations to key stakeholders such as government officials, panchayat representatives and other relevant organizations. Newspaper notification was published in newspaper – The Hindu on 26-August-2015 in local language and in English. Comments received from stakeholders during the meeting have been documented in the minutes of meeting document.

**Instance – 6: Karnataka:** The stakeholder meeting for the VCS project activity instance -6 at Karnataka site was held at the plant site on 22-September-2016. Stakeholders were invited for the meeting by means of public notice and sending personal invitations on 15-September-2016 to key stakeholders such as government officials, panchayat representatives and other relevant organizations. Comments received from stakeholders during the meeting have been documented in the minutes of meeting document.

There were no negative comments received during the meeting and stakeholders appreciated proactive efforts taken by project proponent towards reducing emissions.

**Instance – 7: Vijayapura:** The stakeholder meeting for the VCS project activity instance -6 at Vijayapura site was held at the plant site on 23-September-2016. Stakeholders were invited for the meeting by means of public notice and sending personal invitations on 15-September-2016 to key stakeholders such as government officials, panchayat representatives and other relevant

organizations. Comments received from stakeholders during the meeting have been documented in the minutes of meeting document.

**Instance– 8: Hotgi:** The stakeholder meeting for the VCS project activity instance -8 at Hotgi site was held at the plant site on 13-January-2017. Stakeholders were invited for the meeting by means of public notice and sending personal invitations on 05-January-2017) to key stakeholders such as government officials, panchayat representatives and other relevant organizations. Comments received from stakeholders during the meeting have been documented in the minutes of meeting document. There were no negative comments received during the meeting and stakeholders appreciated proactive efforts taken by project proponent towards reducing emissions.

**Instance–9: Gotan:** The stakeholder meeting for the VCS project activity instance -9 at Gotan site was held at the plant site on 10-November-2016. Stakeholders were invited for the meeting by means of public notice and sending personal invitations on 05-November-2016) to key stakeholders such as government officials, panchayat representatives and other relevant organizations. Comments received from stakeholders during the meeting have been documented in the minutes of meeting document.

There were no negative comments received during the meeting and stakeholders appreciated proactive efforts taken by project proponent towards reducing emissions.

**Instance–10: Sevagram:** The stakeholder meeting for the VCS project activity instance - 10 at Sevagram, Gujrat site was held at the plant site on 20-March-2018. Stakeholders were invited for the meeting by means of public notice and sending personal invitations on 12-March-2018) to key stakeholders such as government officials, panchayat representatives and local villagers. Comments received from stakeholders during the meeting have been documented in the minutes of meeting document.

**Instance–11: Pune:** The stakeholder meeting for the VCS project activity instance -11 at Pune site was held at the plant site on 30-April-2018. Stakeholders were invited for the meeting by means of public notice and sending personal invitations on 25-April-2018) to key stakeholders such as government officials, panchayat representatives and local villagers. Comments received from stakeholders during the meeting have been documented in the minutes of meeting document. There were no negative comments received during the meeting and stakeholders appreciated proactive efforts taken by project proponent towards reducing emissions. The PP also placed a grievance register onsite in where the stakeholder can put down his/her complain and the same if found genuine are being addressed immediately.

| Instance    | Grievance Register                                                                                                                                                                                                                                          |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Instance -1 | The grievance register is kept at security guard room at entrance of each site, in which no grievance has received from stakeholders during the current monitoring period. If any grievance is received it will be addressed by the head of the plant site. |
| Instance -2 |                                                                                                                                                                                                                                                             |
| Instance -3 |                                                                                                                                                                                                                                                             |
| Instance -4 |                                                                                                                                                                                                                                                             |
| Instance -5 |                                                                                                                                                                                                                                                             |
| Instance -6 | The grievance register is kept at security guard room maintained at                                                                                                                                                                                         |

|              |                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Instance -7  | entrance of each located at Vijayapura there are two grievances register one for internal which helps the employees an opportunity to raise a problem or complaint to their employer and another one for external which collects the any grievance from stakeholder aspects. If any grievance is received it will be addressed by the head of the plant site.                  |
| Instance -8  | The grievance register is kept at security guard room maintained at entrance of the site in which no grievance has received from stakeholders during the current monitoring period. If any grievance is received it will be addressed by the head of the plant site.                                                                                                           |
| Instance -9  | In VCS Project for Solar Power Plant located at Gotan also two grievance register are there in order to get the grievances and complaints from both the internal workers and external stakeholders. The grievance register is kept at security guard room maintained at entrance of the site. If any grievance is received it will be addressed by the head of the plant site. |
| Instance -10 | The grievance register is maintained at on-site in which no grievance has received from stakeholders during the current monitoring period. The grievance register is kept at security guard room maintained at entrance of the site. If any grievance is received it will be addressed by the head of the plant site.                                                          |
| Instance -11 | The grievance register is maintained at on-site in which no grievance has received from stakeholders during the current monitoring period. The grievance register is kept at security guard room maintained at entrance of the site. If any grievance is received it will be addressed by the head of the plant site.                                                          |

A suggestion box is also maintained at plant entrance for all sites for seeking suggestion of stakeholders.

## 2.3 AFOLU-Specific Safeguards

The project activity deals with generation of electricity using solar power plant and not AFOLU projects. Hence not applicable.

## 3 IMPLEMENTATION STATUS

### 3.1 Implementation Status of the Project Activity

The installation and commissioning of the project has been done as mentioned below. Since commissioning the project activity is running continuously. The commissioning details of all instances are as follows-

| Project activity instances | Project Owner                       | Title of the project activity                                                     | Location                                                                              | Date of Commissioning |
|----------------------------|-------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------|
| Instance - 1               | Essel Mining and Industries Limited | VCS Project for Solar Power Plant at Bhadla, Rajasthan                            | Bhadla Solar Park, Village - Bhadla, Tehsil - Bap, District- Jodhpur, Rajasthan India | 12-March-2014         |
| Instance - 2               |                                     | VCS Project for Solar Power plant at Achampet, Telangana                          | 5 MW Solar Power Plant, Achampet Village and Mandal, Dist. Mehaboob Nagar,            | 07-July-2014          |
| Instance - 3               |                                     | VCS Project for Solar Power Plant at Kalwakurthy, Dist. Mehaboob Nagar, Telangana | Ternikal Village, Kalwakurthy Mandal, Dist. Mehaboob Nagar, Telangana, India.         | 30-June-2014          |
| Instance - 4               |                                     | VCS Project for Solar Power Plant at Salakpur, Telangana                          | Village: Salakpur District: Warangal State: Telangana, India                          | 17-September-2014     |
| Instance - 5               |                                     | VCS Project for Solar Power Plant at Alladurg, Telangana                          | Village: Bharamdhibba District: Medak State: Telangana, India                         | 28-July-2014          |
| Instance - 6               | Aditya Birla Solar Limited          | VCS Project for Solar Power Plant at Karnataka                                    | Village: Bellatti, Shirahatti District: Gadag State: Karnataka, India                 | 11-May-2017           |

|               |                                       |                                                              |                                                                                           |                  |
|---------------|---------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------|
|               |                                       |                                                              | Village: Chandargi, Kaktol, Ramadurg Taluk<br>District: Belagavi, State: Karnataka, India | 12-May-2017      |
|               |                                       |                                                              | Village: Mulbangal,<br>District: Kolar State: Karnataka, India                            | 13-October-2017  |
|               |                                       |                                                              | Village: Devar Nimbargi,<br>District: Vijayapura State: Karnataka, India                  | 26-March-2018    |
| Instance – 7  | Aditya Birla Renewables SPV 1 Limited | VCS Project for Solar Power Plant at Vijayapura              | Village: DevarNimbargi,<br>District: Vijayapura State: Karnataka, India                   | 26-March-2018    |
| Instance – 8  |                                       | VCS Project for Solar Power Plant at Hotgi, Maharashtra      | Village: Hotgi, Tal South Solapur District: Solapur State: Maharashtra, India             | 20-June-2018     |
| Instance – 9  |                                       | VCS Project for Solar Power Plant at Gotan, Rajasthan, India | Village: Kharia Khangar, Tehsil: Bhopalgarh District: Jodhpur State: Rajasthan, India     | 01-February-2018 |
| Instance – 10 |                                       | VCS Project for Solar Power Plant at Sevagram, Gujrat        | Village: Sevagram, Tal- Abdasa District: Kutch State: Gujarat, India                      | 14-August-2018   |
| Instance – 11 |                                       | VCS Project for Solar Power Plant at Pune, Maharashtra       | Village: Peth, Tal Havelim Dist Pune, Maharashtra, India                                  | 01-February-2018 |

During the monitoring period there has been no event or situation which may impact the operation of project except some major breakdown which is mentioned below in Appendix -3.

The project activity is a grouped project activity in which various project instances would be added from time to time. These project activity instances involve installation of renewable electricity

generation projects based on Solar PV technology. The project activity instances are being either small scale project activities (with power generation capacity less than 15 MW) or large-scale project activities (with power generation capacity more than 15 MW). All the project activity instances would be connected to the grid and power generated would be dispatched to the grid. Under the grouped project activity installation of solar PV based power plant and generation of renewable electricity replaces the equivalent amount of electricity generated through other grid connected fossil fuel fired power plants. The project activity thus leads to reduction in an equivalent amount of GHG emissions.

For the captive projects, the project participant establishes the project activity because of associated environment benefits. The project proponent would be using the electricity directly from the grid if not for the installation of solar PV based power plant for the captive usage. Hence Through utilization of renewable power, the project activity would be displacing equivalent quantum of grid electricity which would otherwise be generated from fossil fuel dominated grid.

As per the guidelines provide by MNRE; the capacity of a solar PV power plant is defined as “Maximum Power Output (AC) from the Solar Power Plant which can be scheduled at the point of Injection to the GRID during any time block of the day”. There is no technology transfer involved in the proposed grouped project activity.

**Technical Specifications of above project activity instances are as follows:**

| Project activity instances  | Capacity | PV Modules                                                                     | Inverters                                                       |
|-----------------------------|----------|--------------------------------------------------------------------------------|-----------------------------------------------------------------|
| Instance – 1<br>Bhadla      | 20 MW    | 36,288 nos. (245 Wp each)<br>52,488 nos. (250 Wp each)<br>Manufactured by CSun | 30 nos. (680 kVA each)<br>Manufactured by Schneider             |
| Instance – 2<br>Achampet    | 5 MW     | 18,340 nos. (300 Wp each)<br>Manufactured by CSun                              | 7 nos, (860 kVA each)<br>Manufactured by<br>Schneider Electric  |
| Instance – 3<br>Kalwakurthy | 10 MW    | 37,940 nos. (290 Wp each)<br>Manufactured by CSun                              | 14 nos, (680 kVA each)<br>Manufactured by Schneider<br>Electric |
| Instance – 4<br>Salakpur    | 10 MW    | 36,680 nos. (300 Wp each)<br>Manufactured by YINGLI                            | 14 nos, (680 kVA each)<br>Manufactured by Schneider<br>Electric |
| Instance – 5<br>Alladurg    | 10 MW    | 36,680 nos. (300 Wp each)<br>Manufactured by CSUN                              | 14 nos, (680 KVA each)<br>Manufactured by Schneider<br>Electric |
| Instance – 6<br>Karnataka   | 20 MW    | 69,800 nos. (320/315 Wp<br>each) Make Seraphim                                 | 30 nos. (680 kVA each)<br>Schindler make                        |

|                            |        |                                                                  |                                         |
|----------------------------|--------|------------------------------------------------------------------|-----------------------------------------|
|                            | 20 MW  | 69,760 nos. (320/315 Wp each) Make Seraphim                      | 30 nos. (680 kVA each) Schindler make   |
|                            | 20 MW  | 70,040 nos. (320/315 Wp each) Make Seraphim                      | 30 nos. (680 kVA each) Schindler make   |
|                            | 17 MW  | 87,120 nos. (78,360- 320 Wp each) Make Znshine Solar             | 14 nos. (1250 KVA each) Schindler make  |
| Instance – 7<br>Vijayapura | 6.8 MW | 8,760-315 Wp each, Make Znshine Solar                            | 06 nos. (1250 KVA each) Schindler make  |
| Instance – 8<br>Hotgi      | 0.8 MW | 3,000 nos. (320 Wp each) Make Canadian solar                     | 10 invertors (800 KVA each), Delta make |
| Instance – 9<br>Gotan      | 5 MW   | Total 18,320, 8090- 325 Wp/ 10250- 330 Wp), Make- Canadian Solar | 5 Invertors (1 MW each) Make- ABB Ltd   |
| Instance – 10<br>Sevagram  | 5 MW   | Total 15,520 nos. (7,820-320 Wp and 7,700-325 Wp) Make Emmvee    | 4 Invertors (1 MW each) TMEIC make      |
| Instance – 11<br>Pune      | 0.8 MW | 3,000 nos. (320 Wp each) Make Canadian solar                     | 10 invertors, (800 KVA each) Delta make |

## 3.2 Deviations

### 3.2.1 Methodology Deviations

There is no request for deviation applied during current or previous monitoring period

### 3.2.2 Project Description Deviations

Following deviation was applied during monitoring period of 01-April-2021 to 31-August-2022.

Deviation 1 – In Section 4.3 Apportioning procedure added to the monitoring plan in case of mis-match between dates of the JMRs of first & last months and start & end dates of this monitoring period.

Deviation requested in current monitoring period-

Deviation -2 The geo coordinates of some sites were incorrect and hence it is corrected in section 1.7 The details of correction is mentioned below-

| Project activity instances | Location | Geo coordinates as per registered PD | Corrected Geo Coordinates |
|----------------------------|----------|--------------------------------------|---------------------------|
|                            |          |                                      |                           |

|                             |                                                                                                       |                                                                     |                                                        |
|-----------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------|
| Instance – 1<br>Bhadla      | Bhadla Solar Park,<br>Village –Bhadla, Tehsil –<br>Bap, District – Jodhpur,<br>Rajasthan India        | Latitude: 27.561 <sup>0</sup> N<br>Longitude: 71.929 <sup>0</sup> E | Latitude: 27 ° 31'10"N<br>Longitude: 71 ° 55'47"E      |
| Instance – 2<br>Achampet    | 5 MW Solar Power Plant,<br>Achampet Village and<br>Mandal, Dist. Mehaboob<br>Nagar, Telangana, India. | Latitude: 16.4 <sup>0</sup> N<br>Longitude: 78.6 <sup>0</sup> E     | Latitude: 16 ° 23'28.0"N<br>Longitude: 78 ° 39'45.0"E  |
| Instance – 3<br>Kalwakurthy | Ternikal Village,<br>Kalwakurthy Mandal,<br>Dist. Mehaboob Nagar,<br>Telangana, India.                | Latitude: 16.7 <sup>0</sup> N<br>Longitude: 78.5 <sup>0</sup> E     | Latitude: 16 ° 37'23.0"N<br>Longitude: 78 ° 28'26.0"E  |
| Instance – 4<br>Salakpur    | Village: Salakpur District:<br>Warangal State:<br>Telangana, India                                    | Latitude: 17.89 <sup>0</sup> N<br>Longitude: 79.05 <sup>0</sup> E   | Latitude: 17 ° 54'09.0"N<br>Longitude: 79 ° 01'47.0"E  |
| Instance – 5<br>Alladurg    | Village: Bharamdhibba<br>District: Medak State:<br>Telangana, India                                   | Latitude: 17.94 <sup>0</sup> N<br>Longitude: 77.92 <sup>0</sup> E   | Latitude: 17 ° 56'48.0"N<br>Longitude: 77 ° 55'39.0"E  |
| Instance – 6<br>Karnataka   | Village: Bellatti,<br>Shirahatti District: Gadag<br>State: Karnataka, India                           | Latitude 15.09 <sup>0</sup> N ,<br>Longitude: 75.623 <sup>0</sup> E | Latitude: 15 ° 5'12.19"N<br>Longitude: 75 ° 37'45.37"E |

|                       |                                                                                     |                                                               |                                                                 |
|-----------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|
| Instance – 8<br>Hotgi | Village: Hotgi, Tal South<br>Solapur District: Solapur<br>State: Maharashtra, India | Latitude:17.55953712°<br>N<br><br>Longitude:76.0021<br>4484°E | Latitude: 17 °33'40.33"N<br><br>Longitude:75 °59'56"E           |
| Instance –<br>11 Pune | Village: Peth, Tal Haveli,<br>Dist Pune, Maharashtra,<br>India                      | Latitude: 18.494475°N<br>,<br><br>Longitude:74.0970<br>218°E  | Latitude: 18 °29'40.1712"<br>N<br><br>Longitude:74 °5'59.8128"E |

Deviation -3 The inverter details for Vijayapura site (both instance 6 and instance 7) were mentioned incorrect in registered VCS PD and same is corrected in section 3.1.

### 3.3 Grouped Projects

No new instances have been added for this grouped project activity during the current verification period.

## 4 DATA AND PARAMETERS

### 4.1 Data and Parameters Available at Validation

|                                                                                              |                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data / Parameter                                                                             | EF <sub>grid, CM, y</sub>                                                                                                                                                                                                 |
| Data unit                                                                                    | tCO <sub>2</sub> /MWh                                                                                                                                                                                                     |
| Description                                                                                  | Combined margin emission factor for National Grid in year y for the grouped project activity                                                                                                                              |
| Source of data                                                                               | The combined margin emission factor is calculated using following formula:<br>$EF_{grid, CM, y} = EF_{grid, OM, y} * W_{OM} + EF_{grid, BM, y} * W_{BM}$                                                                  |
| Value applied                                                                                | 0.9770 for NEWNE grid and 0.9817 for Southern grid                                                                                                                                                                        |
| Justification of choice of data or description of measurement methods and procedures applied | This is in accordance with applicable methodologies – AMS.I. D (version 18.0), ACM0002 (version 16.0) and AMS I.F (Version 03) along with Tool to calculate the emission factor for an electricity system (version 05.0). |
| Purpose of Data                                                                              | For the calculation of the Baseline Emission                                                                                                                                                                              |
| Comments                                                                                     | The combined margin emission factor for respective projects is applied depending on which grid they operate in.                                                                                                           |

### 4.2 Data and Parameters Monitored

|                                                                 |                                                                                                                                                                                                        |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data / Parameter                                                | EGPJ, facility, y                                                                                                                                                                                      |
| Data unit                                                       | MWh                                                                                                                                                                                                    |
| Description                                                     | Net electricity supplied to the grid by the project activity instance during the year y (for AMS I.D and ACM002 component)                                                                             |
| Source of data                                                  | The quantity of net electricity supplied by the project activity to the grid (i.e., Net export in kWh) is taken from monthly “Joint Meter Reading” report which contains monthly energy meter reading  |
| Description of measurement methods and procedures to be applied | Net electricity supplied to the Grid is calculated based on the measured values of “export” and “import” on the meter at the delivery point, where monthly joint meter reading is taken.               |
| Frequency of monitoring/recording                               | Continuous measurement & monthly recording                                                                                                                                                             |
| Value monitored                                                 | <ol style="list-style-type: none"> <li>1. Project Activity Instance- 1 – 43,290.45</li> <li>2. Project Activity Instance- 2 – 8,868.39</li> <li>3. Project Activity Instance- 3 – 18,687.88</li> </ol> |

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                | <p>4. Project Activity Instance- 4 – 17,378.90</p> <p>5. Project Activity Instance- 5 – 17,921.87</p> <p>6. Project Activity Instance- 6 - 147,044.28</p> <p>7. Project Activity Instance- 7 - 14,111.14</p> <p>Total= 267,302.91</p>                                                                                                                                                                                                                                                                                                                                     |
| Monitoring equipment           | Monitoring equipment are energy meters installed at each of the project activity instance site with accuracy class of 0.2s installed at the delivery point-project activity switchyard                                                                                                                                                                                                                                                                                                                                                                                    |
| QA/QC procedures to be applied | <p>The measurement of the electricity generated are being jointly recorded by respective power distribution company and project participants. This value is treated as the accurate and final measurement of the energy supplied to Grid by the power producer.</p> <p>The meters are installed at the delivery point to grid. All meters shall be calibrated as described in the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006. These regulations describe of calibration of meters to be done at least once in five years.</p> |
| Purpose of the data            | Calculation of baseline emissions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Calculation method             | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Comments                       | The monitored data are being archived electronically by the project proponent for the period that covers crediting period + 2 years.                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|                                                                 |                                                                                                                                                                                    |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data / Parameter                                                | $EG_{BL,y}$                                                                                                                                                                        |
| Data unit                                                       | MWh                                                                                                                                                                                |
| Description                                                     | Net electricity displaced by the project activity instance during the year y (for AMS I.F component)                                                                               |
| Source of data                                                  | The quantity of net electricity displaced by the project activity is taken from monthly “Joint Meter Reading” report or Monthly report which contains monthly energy meter reading |
| Description of measurement methods and procedures to be applied | Net electricity displaced is calculated based on the measured values of “export” on the meter at the delivery point, where monthly joint meter reading is taken                    |

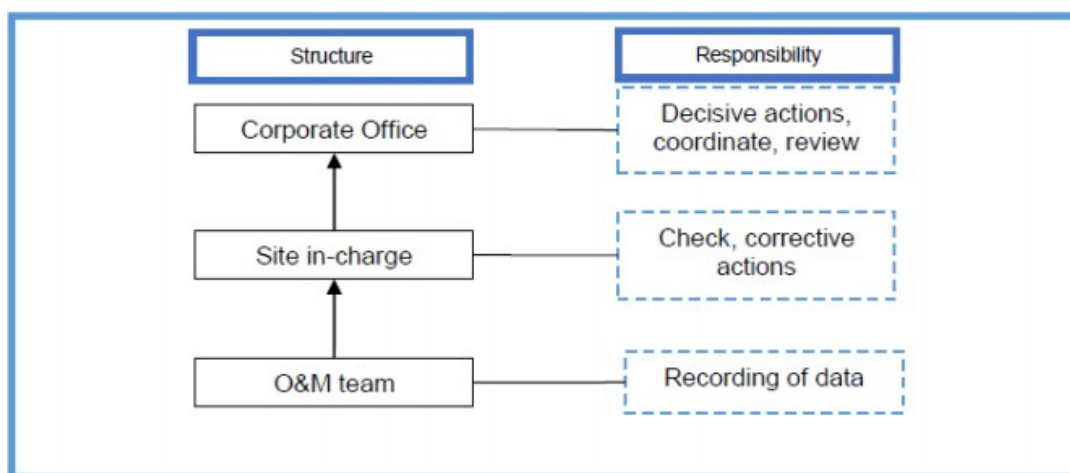
|                                   |                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency of monitoring/recording | Continuous measurement & monthly recording                                                                                                                                                                                                                                                                       |
| Value monitored                   | <ol style="list-style-type: none"> <li>1. Project Activity Instance- 8 –1,665.44</li> <li>2. Project Activity Instance- 9 –10,684.08</li> <li>3. Project Activity Instance- 10 – 9,645.34</li> <li>4. Project Activity Instance- 11 –1,497.20</li> </ol> <p>Total = 23,492.06</p>                                |
| Monitoring equipment              | Monitoring equipment are energy meters of 0.2s accuracy class & make L&T, Elster and Secure installed at each of the project activity instance site. Readings are being cross checked with Invoices.                                                                                                             |
| QA/QC procedures to be applied    | The measurement of the electricity displaced by meters installed at site. All meters shall be calibrated as described in the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006. These regulations describe of calibration of meters to be done at least once in five years. |
| Purpose of the data               | Calculation of baseline emissions                                                                                                                                                                                                                                                                                |
| Calculation method                | -                                                                                                                                                                                                                                                                                                                |
| Comments                          | The monitored data are being archived electronically by the project proponent for the period that covers crediting period + 2 years.                                                                                                                                                                             |

### 4.3 Monitoring Plan

The monitoring plan for the grouped project activity has been developed in accordance with procedures described in methodologies – AMS.I. D (version 18.0), AMS I.F (version 3.0) and ACM0002 (version 16.0). Two of these methodologies require monitoring of the quantity of net electricity supplied from the project activity power plant to the grid. For AMS I.F methodology, the monitoring of net quantity of electricity displaced by project is required. The monitoring plan is described as follows:

#### Roles and Responsibility:

Essel Mining and Industries Limited (EMIL) and their other group companies are acting as the coordinating and managing entity for the grouped project activity. The management structure implemented for the purpose of monitoring of project activity is explained as follows:



### Corporate Office:

Officers in corporate office of project proponent are responsible for overall co-ordination towards the project activity instances development under VCS, including communication with VCS Consultants and Validation/Verification agencies etc. They also ensure that the relevant monitoring and data up-keep is carried out for the project activity properly and regularly. Thus, corporate office of Project Proponent/ project activity instance owner is solely responsible for timely execution of all the related activities in VCS project development as well as operation of the proposed grouped project activity and take decisive actions in this regard.

### Site In-charge:

Site In-charge for each of the project activity instance are the project activity instance owner staff who is responsible for trouble free day to day operation of Solar PV project in support with O&M Team at respective sites. The site in-charge ensures that the monitoring plan is adhered and operations are carried out as per standard procedures. He/she collects all the relevant monitored data from O&M Team, and submit them to the corporate office for perusal. For the VCS aspects, he/she co-ordinates for the site visits under validation/verification process of the project activity.

### O&M Team:

The monitoring data related to the project activity are collected, reported, maintained and archived by O&M team at the respective project sites. The corrective actions (if required) would be taken by O&M Team to maintain the quality of data. The team further submits the monitoring data to site in-charge for perusal. The O and M entity are as follows-

| Project activity instances | Project Owner | Title of the project activity | Location | O and M entity |
|----------------------------|---------------|-------------------------------|----------|----------------|
|----------------------------|---------------|-------------------------------|----------|----------------|

|              |                                     |                                                                                   |                                                                                         |                                     |
|--------------|-------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------|
| Instance – 1 | Essel Mining and Industries Limited | VCS Project for Solar Power Plant at Bhadla, Rajasthan                            | Bhadla Solar Park, Village – Bhadla, Tehsil – Bap, District- Jodhpur, Rajasthan India   | Sterling and Wilson Private Limited |
| Instance – 2 |                                     | VCS Project for Solar Power plant at Achampet, Telangana                          | 5 MW Solar Power Plant, Achampet Village and Mandal, Dist. Mehaboob Nagar,              | Sterling and Wilson Private Limited |
| Instance – 3 |                                     | VCS Project for Solar Power Plant at Kalwakurthy, Dist. Mehaboob Nagar, Telangana | Ternikal Village, Kalwakurthy Mandal, Dist. Mehaboob Nagar, Telangana a, India.         | Sterling and Wilson Private Limited |
| Instance – 4 |                                     | VCS Project for Solar Power Plant at Salakpur, Telangana                          | Village: Salakpur District: Warangal State: Telangana, India                            | Sterling and Wilson Private Limited |
| Instance – 5 |                                     | VCS Project for Solar Power Plant at Alladurg, Telangana                          | Village: Bhiaramdhibba District: Medak State: Telangana, India                          | Sterling and Wilson Private Limited |
| Instance – 6 | Aditya Birla Solar Limited          | VCS Project for Solar Power Plant at Karnataka                                    | Village: Bellatti, Shirahatti District: Gadag State: Karnataka, India                   | Self O and M /inhouse               |
|              |                                     |                                                                                   | Village: Chandargi , Kaktol, Ramadurg Taluk District: Belagavi, State: Karnataka, India | Self O and M /inhouse               |
|              |                                     |                                                                                   | Village: Mulbangal, District: Kolar State: Karnataka, India                             | Self O and M /inhouse               |
|              |                                     |                                                                                   | Village: Devar Nimbargi, District: Vijayapura State: Karnataka, India                   | Self O and M /inhouse               |
| Instance – 7 |                                     | VCS Project for Solar Power Plant at Vijayapura                                   | Village: DevarNimbargi, District: Vijayapura State: Karnataka, India                    | Self O and M /inhouse               |

|               |                                                |                                                              |                                                                                       |                       |
|---------------|------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------|
| Instance – 8  | Aditya Birla<br>Renewables<br>SPV 1<br>Limited | VCS Project for Solar Power Plant at Hotgi, Maharashtra      | Village: Hotgi, Tal: South Solapur District: Solapur State: Maharashtra, India        | Self O and M /inhouse |
| Instance – 9  |                                                | VCS Project for Solar Power Plant at Gotan, Rajasthan, India | Village: Kharia Khangar, Tehsil: Bhopalgarh District: Jodhpur State: Rajasthan, India | In house              |
| Instance – 10 |                                                | VCS Project for Solar Power Plant at Sevagram, Gujrat        | Village: Sevagram, Tal: Abdasa District: Kutch State: Gujarat, India                  | Tata Projects Limited |
| Instance – 11 |                                                | VCS Project for Solar Power Plant at Pune, Maharashtra       | Village: Peth, Tal: Havelim Dist Pune, Maharashtra, India                             | Self O and M /inhouse |

#### Monitoring Procedures:

For each of the project activity instance to be included in the grouped project activity, the meters are installed which monitors the net electricity supplied to grid or net electricity displaced by project activity.

Net electricity supplied to grid is calculated as the difference of the measured values of “export” and “import” at the metering point. The energy import and export readings are recorded on monthly basis in the form of Joint Meter Readings (JMR). The readings are taken in presence of representative from project proponent and representative from power purchasing party. The JMR document is signed by all these representatives.

This net electricity supplied is utilized for the purpose of GHG emission reductions by the project activity. Same monitoring plan is followed at each project activity instance.

#### QA/QC Procedures:

All main and back up meters installed at each of the project activity instance sites calibrated as described in Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006. Currently the regulations describe of calibration of meters to be done at least once in five years.

Further, the net electricity exported to the grid can be cross verified with sales invoices raised in the name of power purchaser.

#### Completeness:

#### Data Management and Data Archiving (Central GHG information system):

Copies of monitored data sheet and monthly energy meter reading reports are being maintained for the entire crediting period plus two years by the project proponent. Central GHG information system and controls are being maintained by owner. Data for all the project activity instances are maintained. This data is being maintained in electronic format for entire crediting period plus two years.

**Procedures for Data Adjustments/Uncertainties:****Reading and Corrections of Meters:**

1. Project proponent, representative from GSS and representative from the power purchaser shall jointly read the metering system on every month at the delivery point.
2. In the event that the main metering system is not in service as a result of maintenance, repairs or testing, then the back-up metering system shall be used during the period the main metering system is not in service.
3. Meter reading taken jointly at the appointed date and time is being signed by the representative of project proponent, representative from GSS and representative from the power purchaser. If representative from project proponent is not present, then the power purchaser shall provide the project participant with a signed copy of the meter reading of the Main Metering System and check Metering System for all sites and standby metering system reading for the Telangana site at Instance 2,3,4 and 5. Such meter readings shall be treated as the accurate and final measurement of the energy supplied to grid by the power producer.

**Sealing and Maintenance of Meters:**

1. The main metering system and back-up metering system (Check meters and Standby meter wherever present) is sealed in the presence of representative of project proponent, representative from GSS and representative from the power purchaser.
2. When the main metering system and/or back-up metering system (Check meters and Standby meter wherever present) and/or any component thereof is found to be outside the acceptable limits of accuracy or otherwise not functioning properly, it shall be repaired, re-calibrated or replaced as soon as possible
3. Any meter seal(s) shall be broken only by the GSS representative in the presence of project proponent and representative from the power purchaser whenever the main metering system or the back-up metering system is to be inspected, tested, adjusted, repaired or replaced.

**Apportioning Procedure –**

In case if monitoring period differs from billing cycle then in order to align the monitoring start date and end date with billing cycle, various start and end date of

billing cycle are being apportioned using Daily Generation Report. The apportioning is done on the basis of generation ratio (Generation ratio: DGR's generation for the period covered in the monitoring period/ DGR's Total

The following steps are applied to carry out the apportioning:

- Apportioning Ratio = (Generation at controller for apportioning period) / (Generation at controller for period covered under generation statement)
- Apportioned Electricity Export = Apportioning Ratio x Electricity Export as per Generation statement
- Apportioned Net Electricity exported = Apportioned Electricity Export – Electricity Import

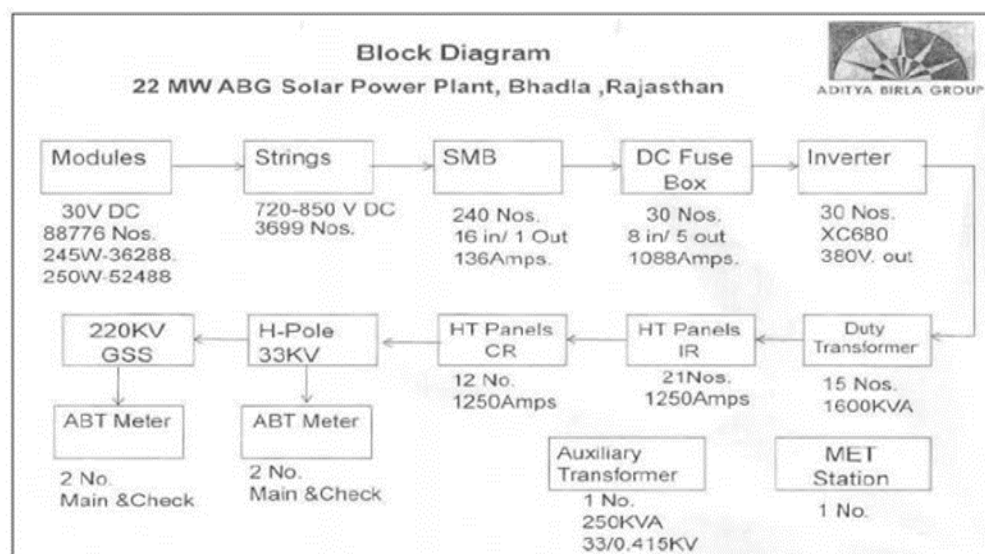
Following electricity generation apportioning procedure are being followed, if the crediting period date of the project activity falls in-between the billing cycle of state electricity utility.

The option presented below is being adopted for arriving at the partial day's electricity generation of the month. Based on average generation per day calculated from state electricity utility generation report for the month: Apportioned days of operation of month: A, Total days of operation of month: B, Generation as per state electricity utility generation report per month: C

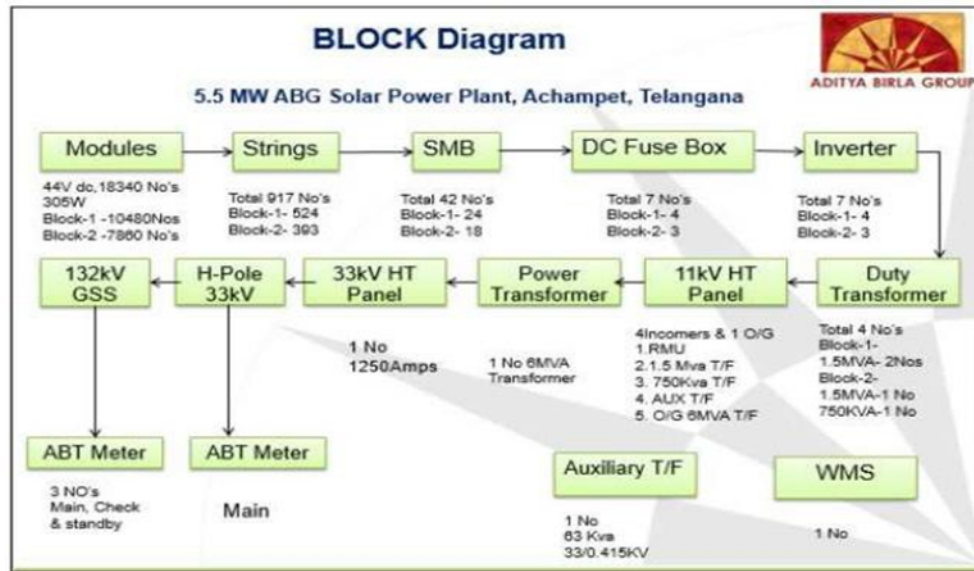
Electricity generation for apportioned days as per state electricity utility Generation statement used for emission reduction calculations (MWh): (A/B) \*C

For Instance, 5- Alladurg site, the JMR for September 2022 is issued from 1-September-2022 to 19-September-2022 whereas the monitoring period starts from 01-September-2023, hence value is apportionated. Also,for October 2023 JMR is issued for 03-October-2023 to 02-October-2023 whereas end date of monitoring period is 31-october-2023 Line diagram of individual project instances are as follows:

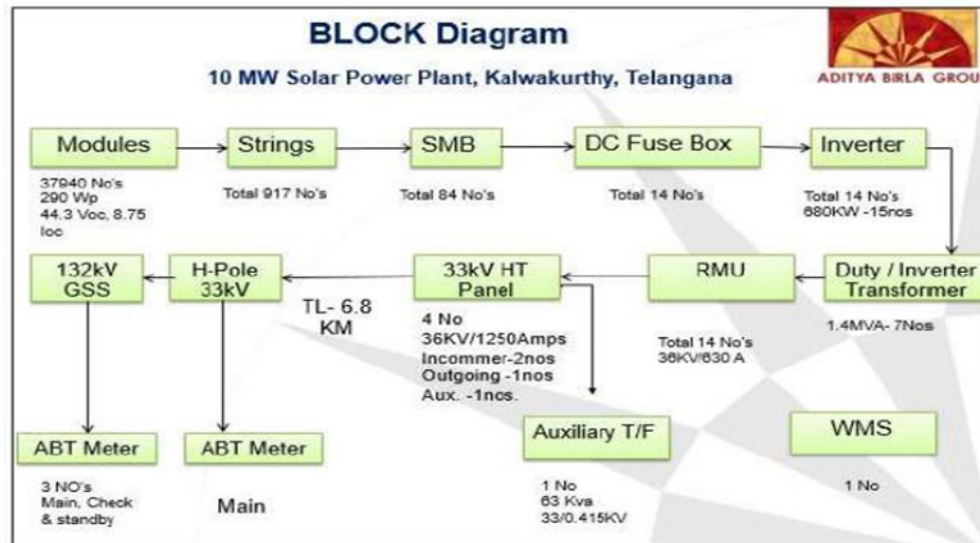
#### Instance 1:



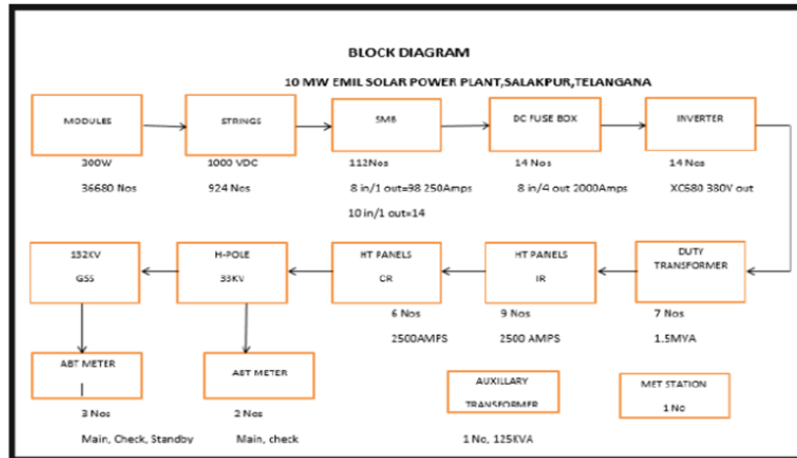
### Instance 2



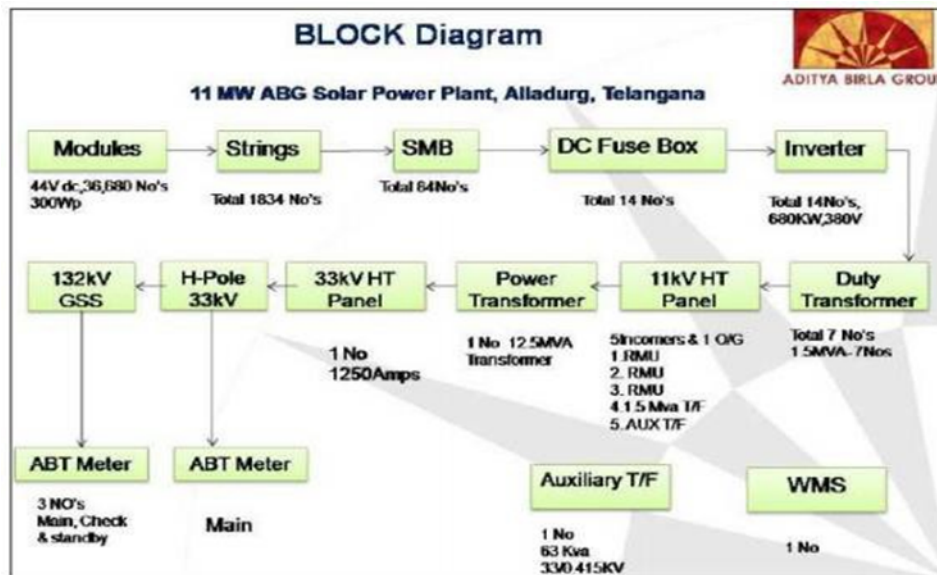
### Instance 3



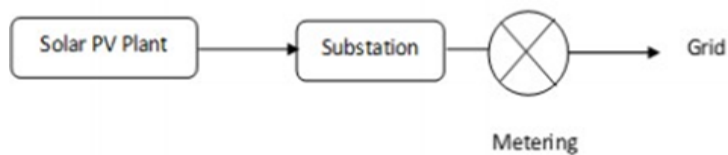
### Instance 4



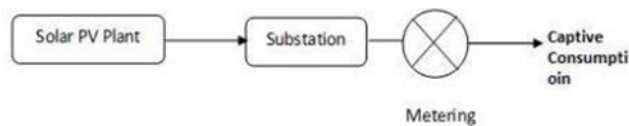
Instance 5



Line Diagram for the Instance 6 and 7



Line Diagram for the Instance 8 to 11



# 5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

## 5.1 Baseline Emissions

Baseline emissions are calculated by multiplying the Net electricity exported to the grid with net baseline emission factor, as given in the VCS PD.

$$BE_y = EG_{PJ, y} * EF_{CO_2, grid, y}$$

Where,

$EG_{PJ, y}$  = Quantity of net electricity generation that is generated and fed into the grid or grid electricity displaced as a result of the implementation of the CDM project activity in year y (MWh)

$EF_{CO_2, grid, y}$  = Combined margin  $CO_2$  emission factor for grid connected power generation Also as per the applied methodology AMS I.D, ACM0002 and AMS I.F. baseline emissions are being calculated as follows:

| Instance      | $EG_{PJ, facility, y}$ | $EF_{CO_2, grid, y}$ | $BE_y = EG_{PJ, facility, y} * EF_{CO_2, grid, y}$ |
|---------------|------------------------|----------------------|----------------------------------------------------|
| Instance - 1  | 4,3290.45              | 0.977                | 42,294.77                                          |
| Instance - 2  | 8,868.39               | 0.9817               | 8,706.09                                           |
| Instance - 3  | 18,687.88              | 0.9817               | 18,345.89                                          |
| Instance - 4  | 17,378.90              | 0.9817               | 17,060.87                                          |
| Instance - 5  | 17,921.87              | 0.9817               | 17,593.90                                          |
| Instance - 6  | 147,044.28             | 0.9817               | 144,353.37                                         |
| Instance - 7  | 14,111.14              | 0.9817               | 13,852.919                                         |
| Instance - 8  | 1,665.44               | 0.977                | 1,627.14                                           |
| Instance - 9  | 10,684.08              | 0.977                | 10,438.35                                          |
| Instance - 10 | 9,645.34               | 0.977                | 9,423.49                                           |
| Instance - 11 | 1,497.20               | 0.977                | 1,462.76                                           |

$$BE_y = 285,158 \text{ tCO}_2\text{e (Round down Value)}$$

## 5.2 Project Emissions

Since the project activity instances to be included into the grouped project activity are renewable energy projects based on solar PV technology, there is no project emissions involved as per paragraph 39 of the small-scale methodology AMS.I. D (version 18.0), para 24 of AMS I.F Version 03 and paragraph 35 of the large-scale methodology ACM0002 (version 16.0). Hence,

$$PE_y = 0$$

## 5.3 Leakage

Since the project activity instances to be included into the grouped project activity are renewable energy projects based on solar PV technology, no leakage emissions are considered - in line with paragraph 42 of the small-scale methodology AMS.I. D (version 18.0), para 27 of AMS I.F Version 03 and paragraph 60 of the large-scale methodology ACM0002 (version 16.0).

$$LE_y = 0$$

## 5.4 Net GHG Emission Reductions and Removals

:

| 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) |
|------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------|----------------------------------------|--------------------------------------------------------------|
| Vintage 2022 (01-September-2022 to 31-December-2022) | 77,710                                              | 0                                                  | 0                                      | 77,710                                                       |
| Vintage 2023 (01-January-2023 to 31-October-2023)    | 207,448                                             | 0                                                  | 0                                      | 207,448                                                      |
| <b>Total</b>                                         | <b>285,158</b>                                      | <b>0</b>                                           | <b>0</b>                               | <b>285,158</b>                                               |

| <u>Ex-ante emissions reductions/removals</u> | <u>Achieved emissions reductions/removals</u> | <u>Percent difference</u> | <u>Justification for the difference</u>       |
|----------------------------------------------|-----------------------------------------------|---------------------------|-----------------------------------------------|
| 288,423 tCO <sub>2</sub> e                   | 285,158 tCO <sub>2</sub> e                    | -1.13%                    | To be noted here that, the estimated emission |

|  |  |  |                                                                                                                                                                                                                                                                                                                                                      |
|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  |  | reduction to be achieved from the project activity for the current monitoring period is 288,423 tCO <sub>2</sub> e, whereas actual emission reductions achieved are 285,158 tCO <sub>2</sub> e. The reason for achieved lower emission reduction is due to 3.49% of breakdown hours out of total operational hours during current monitoring period. |
|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# APPENDIX 1: CALIBRATION DETAILS

| Project activity instances     | Project site           | Main Meter                                    | Check Meter                                  | Stand by meter    | Make   | Accuracy Class | Previous Calibration Date    | Validity                     | New Calibration         |
|--------------------------------|------------------------|-----------------------------------------------|----------------------------------------------|-------------------|--------|----------------|------------------------------|------------------------------|-------------------------|
| Instance – 1: Bhadla           | Bhadla, Rajasthan      | 13194946                                      | 13194947                                     | No stand by meter | L&T    | 0.2s           | 31-July-2019                 | 30-July-2024                 | No new calibration done |
| Instance – 2: Acham pet        | Acham pet, Telangana   | 2781573                                       | 2781574                                      | 2781575           | Elster | 0.2s           | 5-August-2020                | 4-August-2025                | 10-May-2023             |
| Instance – 3: Kalwakurthy      | Kalwakurthy, Telangana | 2781577                                       | 2781578                                      | 2781579           | Elster | 0.2s           | 5-August-2020                | 4-August-2025                | 18-October-2023         |
| Instance – 4: Salakpur/Mutsyal | Mutsyal, Telangana     | 13194257                                      | 13193555                                     | 13194245          | L&T    | 0.2s           | 4-July-2019                  | 3-July-2024                  | No new calibration done |
| Instance – 5: Alladurg         | Alladurg, Telangana    | 2781621                                       | 2781631                                      | 2781630           | Elster | 0.2s           | 15-April-2019                | 14-April-2024                | 24-January-2023         |
| Instance – 6: Karnataka        | Shirahatti, Karnataka  | 16102125                                      | 16102130                                     | No stand by meter | L&T    | 0.2s           | 03-October-2020              | 02-October-2025              | No new calibration done |
|                                |                        | 23007054(new meter installed on 20-June-2023) | 2307055(new meter installed on 20-June-2023) |                   |        |                | New meters are precalibrated | New meters are precalibrated | No new calibration done |
|                                | Ramadurg, Karnataka    | 16102135                                      | 16102133                                     | No stand by meter | L&T    | 0.2s           | 16-May-2020                  | 15-May-2025                  | No new calibration done |
|                                |                        | 23007138(new meter)                           | 23007139(new meter)                          |                   |        |                | New meters are               | New meters are               | No new calibration      |

|                          |                       |                                                |                                                |                   |        |      |                              |                              |                         |
|--------------------------|-----------------------|------------------------------------------------|------------------------------------------------|-------------------|--------|------|------------------------------|------------------------------|-------------------------|
|                          |                       | installed on 02-November-2023)                 | installed on 02-November-2023)                 |                   |        |      | precalibrated                | precalibrated                | tion done               |
|                          | Mulban gal, Karnataka | 14194780                                       | 14194782                                       | No stand by meter | L&T    | 0.2s | 27-February-2019             | 26-February-2024             | No new calibration done |
|                          |                       | 23004476(new meter installed on 24-April-2023) | 2300499 (new meter installed on 24-April-2023) |                   |        |      | New meters are precalibrated | New meters are precalibrated | No new calibration done |
|                          | Vijayapura, Karnataka | X0488422                                       | X0488423                                       | No stand by meter | Secure | 0.2s | 4-November-2019              | 3-November-2024              | No new calibration done |
| Instance – 7: Vijayapura | Vijayapura, Karnataka | X0488419                                       | X0488421                                       | No stand by meter | Secure | 0.2s | 4-November-2019              | 3-November-2024              | No new calibration done |
| Instance – 8: Hotgi      | Hotgi, Maharashtra    | XD434209                                       | XD434210                                       | No stand by meter | Secure | 0.2s | 18-April-2018                | 17-April-2023                | No new calibration done |
| Instance – 9: Gotan      | Gotan, Jodhpur        | RJB90318                                       | RJB90317                                       | No stand by meter | Secure | 0.2s | 17-January-2018              | 16-January-2023              | No new calibration done |
| Instance – 10: Sevagram  | Sevagram, Gujarat     | HT01180175                                     | HT01180176                                     | No stand by meter | EDMI   | 0.2S | 17-July-2018                 | 16-July-2023                 | No new calibration done |
| Instance – 11: Pune      | Pune, Maharashtra     | Y0355612                                       | Y0355568                                       | No stand by meter | Secure | 0.2S | 28-May-2021                  | 30-January-2023              | No new calibration done |

## APPENDIX 2: SDG 8 SUPPORTINGS

1) Site wise number of employees are mentioned below

| Project activity <del>items</del> | Project site          | Number of Employees |
|-----------------------------------|-----------------------|---------------------|
| Instance – 1:Bhadla               | Bhadla, Rajasthan     | 08                  |
| Instance – 2:Achampet             | Achampet Telangana    | 04                  |
| Instance – 3:Kalwakurthy          | Kalwakurthy,Telangana | 08                  |
| Instance – 4: Salakpur/ Mutsyal   | Mutsyal, Telangana    | 10                  |
| Instance – 5:Alladurg             | Alladurg, Telangana   | 05                  |
| Instance – 6:Karnataka            | Shirahatti,Karnataka  | 05                  |
|                                   | Ramadurg, Karnataka   | 05                  |
|                                   | Mulbangal, Karnataka  | 06                  |
|                                   | Vijayapura, Karnataka | 06                  |
| Instance – 7:Vijayapura           | Vijayapura, Karnataka |                     |
| Instance – 8:Hotgi                | Hotgi, Maharashtra    | 03                  |
| Instance – 9:Gotan                | Gotan, Jodhpur        |                     |
| Instance – 10:Sevagram            | Sevagram, Gujarat     | 03                  |
| Instance – 11:Pune                | Pune, Maharashtra     | 03                  |
| Total                             |                       | 66                  |

2) Sample training attendance sheets are attached below-

**22.3 MWp/20 MW Shirahatti Solar Plant,  
Aditya Birla Solar Limited,  
Dist.:Gadag, Karnataka**



**ATTENDANCE & FEEDBACK**

| <b>Subject:</b> Electric Safety<br>(SOP, LOTO) |                        | <b>Date &amp; Time :</b> 05/09/2023 @ 11:00 |             |                                |        |
|------------------------------------------------|------------------------|---------------------------------------------|-------------|--------------------------------|--------|
|                                                |                        | <b>Total Training Hours:</b> 1 hour         |             |                                |        |
| Sr. No                                         | Name                   | Designation                                 | Signature   | Effectiveness score (out of 5) | Remark |
| 1                                              | Shreekant Bonakar      | Sr-Technician                               | [Signature] | 4.0                            |        |
| 2                                              | Fakkiraddi Basavaraddi | Technician                                  | [Signature] | 4.1                            |        |
| 3                                              | Ramesh Patil           | J. engineer                                 | [Signature] | 4.1                            |        |
| 4                                              | Bharatkumar            | Sr. Engg                                    | [Signature] | 4.2                            |        |
| 5                                              |                        |                                             |             |                                |        |
| 6                                              |                        |                                             |             |                                |        |
| 7                                              |                        |                                             |             |                                |        |
| 8                                              |                        |                                             |             |                                |        |
| 9                                              |                        |                                             |             |                                |        |
| 10                                             |                        |                                             |             |                                |        |
| 11                                             |                        |                                             |             |                                |        |
| 12                                             |                        |                                             |             |                                |        |
| 13                                             |                        |                                             |             |                                |        |
| 14                                             |                        |                                             |             |                                |        |
| 15                                             |                        |                                             |             |                                |        |
| 16                                             |                        |                                             |             |                                |        |
| 17                                             |                        |                                             |             |                                |        |
| 18                                             |                        |                                             |             |                                |        |



## ATTENDANCE & FEEDBACK

### Feedback from the Participants:

## APPENDIX 3: BREAKDOWN DETAILS

| Project activity instances          | Project site          | Breakdown hours |
|-------------------------------------|-----------------------|-----------------|
| Instance – 1:Bhadla                 | Bhadla, Rajasthan     | 657.23 hours    |
| Instance – 2:Achampet               | Achampet Telangana    | 15              |
| Instance – 3:Kalwakurthy            | Kalwakurthy,Telangana | 2113.25         |
| Instance – 4: Salakpur/ Mutsyal     | Mutsyal, Telangana    | 129             |
| Instance – 5:Alladurg               | Alladurg, Telangana   | 02              |
| Instance – 6:Karnataka              | Shirahatti,Karnataka  | 109.18          |
|                                     | Ramadurg, Karnataka   | 89.12           |
|                                     | Mulbangal, Karnataka  | 126.95          |
|                                     | Vijayapura, Karnataka | 254.20          |
| Instance – 7:Vijayapura             | Vijayapura, Karnataka | 127.20          |
| Instance – 8:Hotgi                  | Hotgi, Maharashtra    | 03              |
| Instance – 9:Gotan                  | Gotan, Jodhpur        | 02              |
| Instance – 10:Sevagram              | Sevagram, Gujarat     | 104.36          |
| Instance – 11:Pune                  | Pune, Maharashtra     | 1264.08         |
| Total Breakdown hours               |                       | 4997 hours      |
| Total Breakdown hours in percentage |                       | 3.49%           |