

# VALIDATION REPORT

## “VCS GROUPED PROJECT FOR RENEWABLE POWER GENERATION BY ESSEL MINING & INDUSTRIES LIMITED”



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## Summary:

- A brief description of the verification and the project:**

Essel Mining & Industries Limited has commissioned URS Verification Private Limited (URS) for the VCS validation of the Solar power project titled “VCS Grouped Project for Renewable Power Generation by Essel Mining & Industries Limited”, with regard to the relevant requirements of the VCS Standard v3.5, VCSA Rules for project activities, as well as criteria for consistent project operations, monitoring and reporting. This project activity involves installation and electrical energy generation from grouped project activity which will support development of renewable energy generation plants in India and delivering electricity to the grid using Solar Power. The net generated electricity from the project activity is being exported to the respective grid of India. Presently there are five project instances included under the grouped project having total installed capacity of 55MW. As a result the project activity reduces the GHG emissions which would have been generated by the fossil fuel dominated power grid of India.

- The purpose and scope of validation**

The purpose of a validation is to have an independent third party assessment of the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant VCS criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Verified Carbon Units (VCUs).

The validation scope is defined as an independent and objective review of the Project Description (PD). The PD is reviewed against the relevant criteria (see above) and decisions by the VCS Board, including the approved baseline and monitoring methodology AMS-I.D. version 18 “Grid Connected renewable electricity generation” and ACM0002 version 16.0 “Grid-connected electricity generation from

renewable sources". The validation team has, based on the recommendations in the Validation employed a rules-based approach, focusing on the identification of significant risks for project implementation and the generation of VCUs. The validation is not meant to provide any consulting towards the project proponents. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

- **The method and criteria used for validation**

The validation consists of the following phases:

- I) Desk review of the VCS-PD, Project financials and the associated documents
- II) Site visit
- III) follow-up interviews with project proponent and the stakeholders
- IV) Resolution of issues and the issuance of the final validation report and opinion.

Project compliance is checked against VCS Standard version 3.5, VCS Validation & Verification Manual version 3.1, VCS Program Guide version 3.5 and other VCS rules.

- **The number of findings and restrictions of uncertainties related to the validation**

During validation process, validation team raised 7 CARs and 1 CL which were closed satisfactorily. The details of the findings (CARs & CLs) are provided in Appendix of this report.

- **Summary of the validation conclusion**

In summary, the validation team considers that the underlying reason of GHG project cycle and investment analysis is sufficiently evidenced. Thus it is the validation team's opinion that the "VCS Grouped Project for Renewable Power Generation by Essel Mining & Industries Limited", as described in the PD version 03 dated 26/02/2016 meets all the relevant VCSA requirements for the VCS project and relevant criteria of India. and correctly applies the baseline and monitoring methodology AMS I.D., Version 18 for project activity instances with capacity upto 15MW and ACM0002 version 16.0 for project activity instances with capacity more than 15MW. There five initial project instances with one project instance with capacity more than 15 MW and these correctly apply methodology ACM0002 version 16.0. There are four initial project instances with capacity less than 15 MW and it correctly apply methodology AMS I.D., Version 18. The validation team of URS thus recommends the proposed project to be registered as a grouped VCS project activity with the VCSA.

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## 1 INTRODUCTION

### 1.1 Objective

The purpose of a validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan and the project's compliance with

- VCS Standard version 3.5 dated 25/03/2015
- VCS Validation & Verification Manual version 3.1 dated 08/10/2013
- VCS Program Guide version 3.5 dated 08/10/2013
- VCS Program Definitions version 3.5 dated 08/10/2013
- VCS registration and issuance process version 3.6 dated 25/03/2015
- AMS I.D., version 18, dated 28/11/2014
- ACM0002; version 16.0 dated 28/11/2014
- Other relevant rules, including the host country legislation

The project is validated in order to confirm that the VCS project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of Voluntary Carbon Units (VCUs).

### 1.2 Scope and Criteria

The validation scope is to have an independent and objective review of the project design against the criteria as stated in VCS standards version 3.5 dated 25/03/2015 and relevant decisions by CDM EB including the baseline monitoring methodology AMS I.D. version 18 and ACM0002 version 16.0. The validation scope is given as a thorough independent and objective assessment of the project design including especially the correct application of the methodology, the project's baseline study, additionality justification, stakeholder involvement, environmental impacts and monitoring plan, which are included in the VCS-PD /01/ other relevant supporting documents, to ensure that the proposed VCS project activity meets all relevant and applicable criteria mentioned in VCS standards version 3.5 dated 25/03/2015. The validation consists will include the following phases:

- a. Desk review of the VCS-PD, Project financials and the associated documents
- b. Site visit
- c. follow-up interviews with project proponent and the stakeholders
- d. Resolution of issues and the issuance of the final validation report and opinion.

The information included in the PD and the supporting documents were reviewed and assessed against the requirements as set out by the VCS standard v 3.5. Project compliance is checked

against VCS Standard version 3.5, VCS Validation & Verification Manual version 3.1, VCS Program Guide version 3.5 and other VCS rules.

The validation is based on the information made available to validation team and on the contract conditions. The validation is not meant to provide any consulting to the project participants. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

## 1.3 Level of assurance

The validation has been carried out by reviewing the VCS-PD /01/, emission reduction sheet and supporting documents (refer below section 2.2) made available to the assessment team and information collected through performing interviews and document review. Based on review of above mentioned documents, the assessment team is of the opinion that level of assurance is reasonable and that the GHG assertions are free of material errors, omissions and misrepresentations. The verification opinion is assured provided the credibility of all above document.

## 1.4 Summary Description of the Project

The proposed VCS project activity is a Grouped Greenfield Solar power project located in different parts of India. Presently there are five project instances included in this grouped project and there will more Solar Power project to be included in future. The latitude and longitude as provided in VCS PD for five project instances are cross checked by the assessment team at site during the validation site visit and also from declaration provided by PP and found correct. The total installed capacity of the five project instances initially included under the grouped project activity is 55 MW. The location details of five projects as included under the grouped project are given below:

| Name                                                                 | Latitude  | Longitude | Capacity | Village  | Taluka      | District                | Commissioning date |
|----------------------------------------------------------------------|-----------|-----------|----------|----------|-------------|-------------------------|--------------------|
| VCS Project for Solar Power Plant at Bhadla, Rajasthan- Instance 1   | 27.561° N | 71.929° E | 20MW     | Bhadla   | Bap         | Jodhpur, Rajasthan      | 12/03/2014         |
| VCS Project for Solar Power Plant at Achampet, Telangana- Instance 2 | 16.4° N   | 78.6° E   | 5MW      | Achampet | Achampet    | Mahabubnagar, Telangana | 07/07/2014         |
| VCS Project for Solar Power Plant at Kalwakurthy,                    | 16.7° N   | 78.5° E   | 10MW     | Ternikal | Kalwakurthy | Mahabubnagar,           | 30/06/2014         |

| Name                                                                  | Latitude             | Longitude            | Capacity | Village                  | Taluka        | District            | Commissioning date |
|-----------------------------------------------------------------------|----------------------|----------------------|----------|--------------------------|---------------|---------------------|--------------------|
| Dist. Mehabubnagar, Telangana- Instance 3                             |                      |                      |          |                          |               | Telangana           |                    |
| VCS Project for Solar Power Plant at Salakpur, Telangana- Instance 4  | 17.89 <sup>0</sup> N | 79.05 <sup>0</sup> E | 10MW     | Salakpur                 | Maddur Mandal | Warangal, Telangana | 17/09/2014         |
| VCS Project for Solar Power Plant at Alladurg, Telangana- Instance 5. | 17.94 <sup>0</sup> N | 77.92 <sup>0</sup> E | 10MW     | Bhiaram dhibba, Alladurg | -             | Medak, Telangana    | 28/07/2014         |

The Solar Power Projects included in the proposed project activity is installed by Essel Mining & Industries Limited. The generated electricity from the Solar Projects is being exported to the respective grid. The Power Purchase Agreement is signed by Essel Mining & Industries Limited with respective DISCOMs have been checked and found correct. The five project instances presently included under the grouped project activity is displacing the estimated annual net electricity generation i.e. 81,521 MWh from the respective grids of India, which otherwise would have been generated from the respective grid. The project activity doesn't involve any GHG emission sources. The same was also confirmed during the site visit by physical inspection and interaction with PP.

The start date of the grouped project activity is considered as 12/03/2014 which is the date of commissioning of the project at village Bhadla in Rajasthan. The assessment team has checked the commissioning certificate of Solar Power project at Bhadla in Rajasthan and found correct. The commissioning date of initial five instances are mentioned in table above and commissioning date of project at village Bhadla is earliest date of commissioning amongst five instances and hence it is considered at start date. Technical specifications of Solar Power project as mentioned in VCS-PD /01/ were verified with the technical specifications /17/ provided by the equipment suppliers and found to be correct. The same is also validated during the onsite validation site visit and found correct and consistent with the information provided in VCS-PD. The description of the project mentioned by the PP in the VCS-PD/01/ was found to be accurate and complete.

The project will achieve emission reductions by replacing electricity from the NEWNE grid and Southern grid of India, which is dominated by thermal power plants. The annual emission reductions averaged over 10 year period is are expected to be 77,678 tCO<sub>2</sub>e per annum with initial five project instances.

The project activity does not involve any modification or retrofitting an existing system and the Solar plant installed as part of the project activity are new as confirmed from supply contract and site visit.

Validation team confirms that the technology implemented reflects the current good practice in the host country. Implementation of the project activity doesn't involve any technology transfer from Annex-1 countries to host country. The technology given in the VCS-PD /01/ is consistent with the actual planning and implementation of the project activity.

The annual energy generation from all the five project instances included in the grouped project is estimated to be 81,521 MWh/year based on PLF considered from the application for loan submitted to Bank. PLFs are considered from the loan document submitted to bank for respective project instances included under the grouped project /15/. Since the value is assumed from the document submitted to Bank, the validation team agrees with the PLF as it is in line with Annex 11 of EB 48.

The validation team confirmed the installation, the manufacturer, and capacity through inspection of the Solar plant during the site visit and cross verifying with the supply contract /13/, commissioning certificates /08/, power Purchase Agreements /14/ with the state utility.

URS is able to verify all the documented evidence listed above in relevant sections during the validation process for initial five project instances included under the grouped project and is able to confirm that data and considerations are complete and accurate. Moreover URS confirms that the description of the proposed VCS grouped project activity and all five project instances, as contained in the VCS PD sufficiently covers all relevant elements, is accurate and complete and that it provides the reader with a clear understanding of the nature of the proposed VCS project activity

## 2 VALIDATION PROCESS

### 2.1 Method and Criteria

The validation was conducted using URS procedures in line with requirements as specified in CDM M&P, applicable version of VCS Validation and Verification Manual and relevant decision of CDM EB by applying standard auditing techniques:

The validation consists of following phases:

- a) Desk review of the VCS-PD, Project financials and the associated documents
- b) Site visit
- c) follow-up interviews with project proponent and the stakeholders
- d) Resolution of issues and the issuance of the final validation report and opinion.

## Validation team

A team of competency has been selected to perform the validation of the project.

| Name                   | Role                                                         |
|------------------------|--------------------------------------------------------------|
| Mr. Amit Ranjan Mandal | Lead Assessor & Technical Area Expert: TA 1.2                |
| Mr. Rajiv Singhal      | Financial Expert                                             |
| Mr. Naresh Badhwar     | Technical Reviewer & Technical Area Expert: TA 1.2           |
| Mr. Ashok Kumar        | Technical Reviewer (Trainee) & Technical Area Expert TA 1.2) |

## 2.2 Document Review

The initial VCS-PD/01/ for project activity “VCS Grouped Project for Renewable Power Generation by Essel Mining & Industries Limited”, VCS-PD version 02 dated 18/02/2016 and VCS- PD version 03 dated 26/02/2016 were reviewed. The document review includes the assessment of relevant section of the VCS-PD/01/ and the emission reduction calculations provided in the form of excel spread sheet.

The following documents were assessed or referenced as part of verification:

| Sl. No | Name of the Document                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /01/   | <ul style="list-style-type: none"> <li>Essel Mining &amp; Industries Limited: VCS-PD for project activity “VCS Grouped Project for Renewable Power Generation by Essel Mining &amp; Industries Limited” version 01 of 26/11/2015.</li> <li>Essel Mining &amp; Industries Limited: VCS-PD for project activity “VCS Grouped Project for Renewable Power Generation by Essel Mining &amp; Industries Limited” version 02 of 18/02/2016.</li> <li>Essel Mining &amp; Industries Limited: VCS-PD for project activity “VCS Grouped Project for Renewable Power Generation by Essel Mining &amp; Industries Limited” version 03 of 26/02/2016.</li> </ul>                                                                                                                  |
| /02/   | <ul style="list-style-type: none"> <li>Essel Mining &amp; Industries Limited: Excel spread sheets for emission reduction calculations and Grid Emission Factor corresponding to VCS-PD version 01 dated 26/11/2015 and version 02 dated 18/02/2016.</li> <li>Essel Mining &amp; Industries Limited: Excel spread sheets for emission reduction calculations and Grid Emission Factor corresponding to VCS-PD version 03 dated 26/02/2016.</li> </ul>                                                                                                                                                                                                                                                                                                                  |
| /03/   | <ul style="list-style-type: none"> <li>Essel Mining &amp; Industries Ltd.: Stakeholder Invitation Letter for Achampet project under the grouped project dated 07/09/2015.</li> <li>Essel Mining &amp; Industries Ltd.: Stakeholder Invitation Letter for Bhadla project under the grouped project dated 08/09/2015.</li> <li>Essel Mining &amp; Industries Ltd.: Stakeholder Invitation Letter for Kalwakurthy project under the grouped project dated 07/09/2015.</li> <li>Essel Mining &amp; Industries Ltd.: Stakeholder Invitation Letter for Salakpur project under the grouped project dated 04/09/2015.</li> <li>Essel Mining &amp; Industries Ltd.: Stakeholder Invitation Letter for Alladurg project under the grouped project dated 03/09/2015.</li> </ul> |

| Sl. No | Name of the Document                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /04/   | <ul style="list-style-type: none"> <li>Essel Mining &amp; Industries Limited: Copy of newspaper advertisement published in local newspaper for 20MW Solar Project at Bhadla in Rajasthan dated 28/08/2015.</li> <li>Essel Mining &amp; Industries Limited: Copy of newspaper advertisement published in newspaper for stakeholder meeting for 5 MW Solar Project at Achampet in Telangana dated 14/09/2015, 10 MW Solar Project at Kalwakurthy in Telangana dated 14/09/2015, 10MW Solar Project at Salakpur village in Telangana dated 15/09/2015, 10MW Solar Project at Alladurg in Telangana dated 16/09/2015.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| /05/   | <ul style="list-style-type: none"> <li>Essel Mining &amp; Industries Limited: Attendance sheet of stakeholders meeting and minutes of the meeting of stakeholders meeting for Solar Power project located at Bhadla village of Jodhpur District of Rajasthan State of India, dated 12/09/2015.</li> <li>Essel Mining &amp; Industries Limited: Attendance sheet of stakeholders meeting and minutes of the meeting of stakeholders meeting for Solar Power project located at Achampet village of Mahabubnagar District of Telangana State of India, dated 14/09/2015.</li> <li>Essel Mining &amp; Industries Limited: Attendance sheet of stakeholders meeting and minutes of the meeting of stakeholders meeting for Solar Power project located at Kalwakurthy village of Mahabubnagar District of Telangana State of India, dated 14/09/2015.</li> <li>Essel Mining &amp; Industries Limited: Attendance sheet of stakeholders meeting and minutes of the meeting of stakeholders meeting for Solar Power project located at Salakpur village, Maddur Mandal of Warangal District of Telangana State of India, dated 15/09/2015.</li> <li>Essel Mining &amp; Industries Limited: Attendance sheet of stakeholders meeting and minutes of the meeting of stakeholders meeting for Solar Power project located at Bharamdhibba village, Alladurg of Medak District of Telangana State of India, dated 16/09/2015.</li> </ul> |
| /06/   | <p><b>Supply Contract:</b></p> <ul style="list-style-type: none"> <li>Essel Mining &amp; Industries Limited: Supply Contract between EMIL and Sterling &amp; Wilson Limited for project located at Achampet village of Mahabubnagar District of Telangana State of India, dated 03/02/2014.</li> <li>Essel Mining &amp; Industries Limited: Supply Contract between EMIL and Larsen &amp; Toubro Limited for Solar Power project located at Bhadla village of Jodhpur District of Rajasthan State of India, dated 31/05/2013.</li> <li>Essel Mining &amp; Industries Limited: Supply Contract between EMIL and Reflex Energy Limited for Solar Power project located at Kalwakurthy village of Mahabubnagar District of Telangana State of India, dated 15/07/2013</li> <li>Essel Mining &amp; Industries Limited: Supply Contract between EMIL and Larsen &amp; Toubro Limited for Solar Power project located at Salakpur village of Warangal District of Telangana State of India, dated 19/04/2014.</li> <li>Essel Mining &amp; Industries Limited: Supply Contract between EMIL and Sterling &amp; Wilson Limited for project located at Bharamdhibba village, Alladurg of Medak District of Telangana State of India, dated 03/02/2014.</li> <li>Essel Mining &amp; Industries Limited: Power Purchase Agreement (PPA) for all five project instances with respective state Authorities.</li> </ul>                      |
| /07/   | <ul style="list-style-type: none"> <li>Essel Mining &amp; Industries Limited: Extract of the Minutes of Meeting of the Board of Directors of Essel Mining &amp; Industries Limited at its meeting held on 14/08/2013 for the Solar Power Projects located at Achampet, Kalwakurthy, Alladurg and</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Sl. No | Name of the Document                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <p>Salakpur village.</p> <ul style="list-style-type: none"> <li>Essel Mining &amp; Industries Limited: Extract of the Minutes of Meeting of the Board of Directors of Essel Mining &amp; Industries Limited at its meeting held on 22/03/2013 for the Solar Power Projects located at Bhadla, Rajasthan.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| /08/   | <ul style="list-style-type: none"> <li>Jodhpur DISCOM: Commissioning certificate issued to Essel Mining &amp; Industries Limited for Solar Project located at Bhadla Village of Jodhpur District of Rajasthan. The commissioning certificate for Commissioning carried out on 12/03/2014.</li> <li>TRANSCO, TSSPDCL: Commissioning certificate issued to Essel Mining &amp; Industries Limited for Solar Project located at Achampet of Mahabubnagar District of Telangana. The commissioning carried on 07/07/2014.</li> <li>TRANSCO, TSSPDCL: Commissioning certificate issued to Essel Mining &amp; Industries Limited for Solar Project located at Kalwakurthy of Mahabubnagar District of Telangana. The commissioning carried on 30/06/2014.</li> <li>TRANSCO, TSSPDCL: Commissioning certificate issued to Essel Mining &amp; Industries Limited for Solar Project located at Bharamdibbha, Alladurg of Medak District of Telangana. The commissioning carried on 28/07/2014.</li> <li>TRANSCO, TSNPDCL: Commissioning certificate issued to Essel Mining &amp; Industries Limited for Solar Project located at Salakpur village, Maddur Mandal of Warangal District of Telangana. The commissioning carried 26/09/2014.</li> </ul> |
| /09/   | <ul style="list-style-type: none"> <li>Central Electricity Authority: CO2 Baseline data base for the Indian Power Sector User Guide Version 10 of Central Electricity Authority dated December 2014. <a href="http://cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm">http://cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm</a> used as a reference in Baseline Scenario</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| /10/   | <ul style="list-style-type: none"> <li>Ministry of Environment &amp; Forests, Govt. of India.- Environmental Impact Assessment Amendment notification (<a href="http://moef.nic.in/downloads/rules-and-regulations/3067.pdf%20dated%2001/12/2009">http://moef.nic.in/downloads/rules-and-regulations/3067.pdf%20dated%2001/12/2009</a>)</li> <li>Ministry of Environment &amp; Forests, Govt. of India.- Environmental Impact Assessment notification dated 14/09/2006 (<a href="http://envfor.nic.in/legis/eia/so1533.pdf">http://envfor.nic.in/legis/eia/so1533.pdf</a>)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| /11/   | <p>CDM Executive Board: Baseline and monitoring methodology “AMS I.D.”, “Grid-connected renewable electricity generation”, version 18 of 28/11/2014.</p> <p>CDM Executive Board: Baseline and monitoring methodology “ACM0002: Grid-connected electricity generation from renewable sources” version 16.0 dated 28/11/2014.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| /12/   | <p>Essel Mining &amp; Industries Limited: Declaration for non participation in other Emission trading program and other binding limits for the grouped project dated 25/02/2016.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| /13/   | <p>Essel Mining &amp; Industries Limited: Proposal for long term secured loan submitted to Bank for all five project instances in Telangana.</p> <p>Covering letter for loan application (dated 15/06/2013) with received stamp of ICICI bank for four project instances in Telangana and covering letter for loan application (dated 11/11/2013) for project instance in Bhadla, Rajasthan with received stamp of HDFC bank.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| /14/   | <p><b>Power Evacuation Clearance</b></p> <ul style="list-style-type: none"> <li>Southern Power Distribution Company of TG Limited: Clearance letter dated 03/09/2014 for the project at Kalwakurthy, Mahabubnagar, Telangana.</li> <li>Southern Power Distribution Company of TG Limited: Clearance letter dated 15/09/2014 for the project at Achampet, Mahabubnagar, Telangana.</li> <li>Southern Power Distribution Company of TG Limited: Clearance letter dated</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Sl. No | Name of the Document                                                                                                                                                                                                                                                                                                                                                                                   |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <p>16/09/2014 for the project at Medak, Telangana.</p> <ul style="list-style-type: none"> <li>Transmission Corporation of Telangana Limited: Clearance letter dated 16/09/2014 for the project at Salakpur village, Warangal, Telangana.</li> <li>RDPPC Jaipur: Clearance letter dated 07/03/2014 for the project at Bhadla, Jodhpur, Rajasthan.</li> </ul>                                            |
| /15/   | <ul style="list-style-type: none"> <li>Central Electricity Regulatory Commission: Performance of Solar Power Plant in India dated February 2011 for PLF/CUF of the Solar Power Projects (<a href="http://www.cercind.gov.in/2011/Whats-New/PERFORMANCE%20OF%20SOLAR%20POWER%20PLANTS.pdf">http://www.cercind.gov.in/2011/Whats-New/PERFORMANCE%20OF%20SOLAR%20POWER%20PLANTS.pdf</a> )</li> </ul>      |
| /16/   | Chief Electrical Inspector to Government of Telangana: Certificate for energisation of four instances of Solar Power Plants in Telangana under the grouped project.                                                                                                                                                                                                                                    |
| /17/   | Sterling and Wilson Ltd.: Plant layout diagram of all five instances included in grouped project.                                                                                                                                                                                                                                                                                                      |
| /18/   | Gram Panchayat, kalwakurthy: NOC from Gram Panchayat for 10MW Solar Power Project at Kalwakurthy, Telangana dated 11/10/2014.                                                                                                                                                                                                                                                                          |
| /19/   | Gram Panchayat, Salakpur: NOC from Gram Panchayat for Solar Power Project at Salakpur, Telangana dated 25/08/2014.                                                                                                                                                                                                                                                                                     |
| /20/   | Gram Panchayat, Alladurg: NOC from Gram Panchayat for Solar Power Project at Alladurg, Medak, Telangana dated 23/06/2014.                                                                                                                                                                                                                                                                              |
| /21/   | Essel Mining and Industries Ltd.: Application for NOC to Gram Panchayat for Solar Power Project at Achampet, Telangana dated 12/06/2014.                                                                                                                                                                                                                                                               |
| /22/   | Government of Rajasthan: Land Lease Document from District Collector of Jodhpur for Solar Power Project at Bhadla, Jodhpur, Rajasthan dated 22/10/2013                                                                                                                                                                                                                                                 |
| /23/   | Registrar, Joint Stock Companies: Certificate of Incorporation of Essel Mining & Industries Limited.                                                                                                                                                                                                                                                                                                   |
| /24/   | CDM Executive Board: Tool to calculate the emission factor for an electricity system, version 04.0.0                                                                                                                                                                                                                                                                                                   |
| /25/   | Voluntary Carbon Standard: Project description template version 3.2 dated 08/10/2013                                                                                                                                                                                                                                                                                                                   |
| /26/   | Voluntary Carbon Standard: Validation report template version 3.3 dated 08/10/2013                                                                                                                                                                                                                                                                                                                     |
| /27/   | Voluntary Carbon Standard: Validation and Verification Manual version 3.1 dated 08/10/2013                                                                                                                                                                                                                                                                                                             |
| /28/   | Voluntary Carbon Standard: VCS Standard version 3.5 dated 25/03/2015                                                                                                                                                                                                                                                                                                                                   |
| /29/   | Voluntary Carbon Standard: VCS Program Guide version 3.5 dated 08/10/2013                                                                                                                                                                                                                                                                                                                              |
| /30/   | <p>Essel Mining &amp; Industries Limited: Declaration for project not generating any environmental credit, project not participating in any other GHG program and project , not rejected by any other GHG program, , , dated 01/12/2015</p> <p>Declaration for latitude and longitude for the project located at Bhadla, Kalwakurthy, Achampet, Mehbubnagar and Salakpur village dated 27/01/2016.</p> |
| /31/   | CDM EB: "Demonstration of additionality of small scale project activities" Version-10.0                                                                                                                                                                                                                                                                                                                |
| /32/   | Gujarat Electricity Regulatory Commission (GERC): Web link for Tariff orders (2006-2011) for UGVCL <a href="http://www.gercin.org/index.php/en/order/tariff-order">http://www.gercin.org/index.php/en/order/tariff-order</a>                                                                                                                                                                           |
| /33/   | <p>Yathva Energy Solutions Pvt. Ltd.: Meter test report for check meter and main meters of Solar Power Project at Achampet, Telangana dated 29/06/2014.</p> <p>Yathva Energy Solutions Pvt. Ltd.: Meter test report for check meter and main meters</p>                                                                                                                                                |

| Sl. No | Name of the Document                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <p>of Solar Power Project at Salakpur village, Telangana dated 08/09/2014.</p> <p>Yathva Energy Solutions Pvt. Ltd.: Meter test report for check meter and main meters of Solar Power Project at Alladurg, Telangana dated 06/07/2014.</p> <p>Yathva Energy Solutions Pvt. Ltd.: Meter test report for check meter and main meters of Solar Power Project at Kalwakurthy, Telangana dated 29/06/2014.</p> <p>C &amp; I Calibration Pvt. Ltd.: Meter test report for check meter and main meters of Solar Power Project at Bhadla, Rajasthan dated 26/03/2015.</p>                                                                                                                                                                                                                |
| /34/   | <p>Telangana State Pollution Control Board: Consent Order for Establishment of 5MW Solar Power Project at Achampet, Telangana dated 01/10/2014.</p> <p>Telangana State Pollution Control Board: Consent Order for Establishment of 10MW Solar Power Project at Salakpur village, Telangana dated 27/10/2014.</p> <p>Telangana State Pollution Control Board: Consent Order for Establishment of 10MW Solar Power Project at Alladurg, Telangana dated 31/01/2015.</p> <p>Telangana State Pollution Control Board: Consent Order for Establishment of 10MW Solar Power Project at Kalwakurthy, Telangana dated 03/01/2015.</p> <p>Rajasthan State Pollution Control Board: Consent Order for Establishment of 20MW Solar Power Project at Bhadla, Rajasthan dated 28/02/2014.</p> |
| /35/   | Manufacturer's Technical Specification: Technical Details of Projects at different locations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| /36/   | Essel Mining & Industries Limited: Declaration for no Official Development Assistance (ODA) for the grouped project dated 25/02/2016.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## 2.3 Interviews

The assessment team has carried out interviews with operational staff and project proponents in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for VCS.

During validation, the validation team has performed site visit and interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in table 1.

**Table 1:** Mr. Amit Ranjan Mandal, Lead Assessor & Technical Area Expert TA 1.2, interviewed the persons at site and discussed regarding the project during the site visit to all project sites under the grouped project in India. The site visit was carried out on 04/01/2016 and 11/01/2016 to 13/01/2016. The details of discussion at project site are discussed in table below:

|     | Date       | Name and Role                  | Organization                                         | Topic                                                                                                                                                          |
|-----|------------|--------------------------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /1/ | 04/01/2016 | Hari Vallabh Sharma, Sr. Engg. | Essel Mining & Industries Ltd. at Bhadla, Rajasthan. | Project Implementation, Investment decision, Local Stakeholder Consultation Process, Baseline Scenario, Additionality, Monitoring Plan, Environmental Impacts. |
| /2/ | 04/01/2016 | Deepak Sharma, Sr. Engg.       | Essel Mining & Industries Ltd. at Bhadla, Rajasthan. | Monitoring Plan and Monitoring System.                                                                                                                         |

|      | Date                                              | Name and Role                       | Organization                                | Topic                                                                                                 |
|------|---------------------------------------------------|-------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------|
| /4/  | 04/01/2016                                        | Chandresh Kumar, Electrical Engg.   | L & T Ltd. at Bhadla, Rajasthan.            | O & M procedure, schedule and metering & measurement details.                                         |
| /5/  | 04/01/2016                                        | Pritesh Bissa, Engineer             | L & T Ltd. at Bhadla, Rajasthan.            | Project Implementation details.                                                                       |
| /6/  | 04/01/2016                                        | Arvind Singh, Technician.           | L & T Ltd. at Bhadla, Rajasthan.            | Operation & Maintenance details.                                                                      |
| /7/  | 04/01/2016, 11/01/2016, 12/01/2016 and 13/01/2016 | Amit Darak, Consultant              | Deloitte                                    | Project Design, baseline, Additionality, ER calculation etc. for all five project instances in India. |
| /8/  | 11/01/2016                                        | Pavan Kumar M., Manager             | Sterling & Wilson at Kalwakurthy, Telangana | Project implementation details, O & M etc.                                                            |
| /9/  | 11/01/2016                                        | Ram Babu, GET                       | Sterling & Wilson at Kalwakurthy, Telangana | Discussion on monitoring and recording details.                                                       |
| /10/ | 11/01/2016                                        | P. Venkata Pathi Rao, Site Engineer | ABMCPL at Kalwakurthy, Telangana            | Discussion on Operation procedure, Project implementation.                                            |
| /11/ | 11/01/2016                                        | M. Ranadheer, Site Engineer         | Sterling & Wilson at Kalwakurthy, Telangana | O & M procedure.                                                                                      |
| /12/ | 11/01/2016                                        | Shaik Irfan Vali, Site Engineer.    | ABG at Achampet, Telangana                  | Project implementation details, O & M etc.                                                            |
| /13/ | 11/01/2016                                        | Naveen Kumar Satyam, site Engineer  | SWL at Achampet, Telangana                  | Discussion on monitoring and recording details.                                                       |
| /14/ | 11/01/2016                                        | Katravath Ramu, Technician          | SWL at Achampet, Telangana                  | Discussion on Operation procedure, Project implementation.                                            |
| /15/ | 11/01/2016                                        | G. Saidulu, Helper                  | SWL at Achampet, Telangana                  | About the project activity.                                                                           |
| /16/ | 12/01/2016                                        | Sundar P, Site Engineer             | EMIL at Salakpur, Telangana                 | Discussion on Operation procedure, Project implementation, Monitoring Procedure etc.                  |

|      | Date       | Name and Role               | Organization                          | Topic                                                                                |
|------|------------|-----------------------------|---------------------------------------|--------------------------------------------------------------------------------------|
| /17/ | 12/01/2016 | A Eswara Rao, Site Engineer | L & T at Salakpur, Telangana.         | O & M procedure, O & M frequency etc.                                                |
| /18/ | 12/01/2016 | Gaje Singh, Sr. Engineer    | L & T at Salakpur, Telangana.         | Project implementation details, O & M etc.                                           |
| /19/ | 13/01/2016 | I Balaji, Engineer          | Aditya Birla at Medak, Telangana      | Discussion on Operation procedure, Project implementation, Monitoring Procedure etc. |
| /20/ | 13/01/2016 | Nagaraju Kadali, Engineer   | Sterling & Wilson at Medak, Telangana | O & M procedure, O & M frequency etc.                                                |
| /21/ | 13/01/2016 | Ajay Kumar, Engineer        | Sterling & Wilson at Medak, Telangana | Project implementation details, O & M etc.                                           |

## 2.4 Site Inspections

On 04/01/2016 Amit Ranjan Mandal, Lead Assessor and Technical Area Expert (TA 1.2), visited the project site located at Bhadla in the state of Rajasthan. On 11/01/2016, Amit Ranjan Mandal, Lead Assessor and Technical Area Expert (TA 1.2), visited the project sites located at Kalwakurthy and Achampet in the state of Telangana. On 12/01/2016, Amit Ranjan Mandal, Lead Assessor and Technical Area Expert (TA 1.2), visited the project site located at Salakpur in the state of Telangana and on 13/01/2016 Amit Ranjan Mandal, Lead Assessor and Technical Area Expert (TA 1.2), visited the project site located at Medak in the state of Telangana. The Lead Assessor has visited all the initial five instances project sites to resolve question and issues identified during offsite review of documents and to gain additional information regarding the compliance of the project with the relevant criteria applicable for VCS. The assessment team has carried out interviews with operational staff and project proponents in order to assess the information included in the project documentation.

## 2.5 Resolution of Findings

During validation, assessment team considered following steps to resolve the material discrepancy:

### 1) Handling Nonconformities

Nonconformities raised during the validation can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

A **Corrective Action Request (CAR)** will be established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- There is a risk that the project would not be registered by the UNFCCC or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

For a detailed list of all CARs, CLs and FARs raised in the course of the validation pl. refer section 3.

## 2) Draft Validation Report

After reviewing all relevant documents and taken all other relevant information into account, the assessment team issues all findings in the course of a draft verification report and submitted this report to the project proponent in order to respond on the issues raised and to revise the project documentation accordingly.

## 3) Final Validation Report

The project proponent has to reply on those and the requests are “closed out” by the assessment team in case the response is assessed as sufficient. In case of raised FARs the project proponent has to respond on this, identifying the necessary actions to ensure that the topics raised in this finding are likely to be resolved at the latest during the subsequent verification. The assessment team has to assess whether the proposed action is adequate or not.

In case the findings from CARs and CLs cannot be resolved by the project proponent or the proposed action related to the FARs raised cannot be assessed as adequate, no positive validation opinion can be issued by the assessment team.

## 4) Technical review

Before submission of the final validation report to VCS board, a technical review of the whole validation procedure will be carried out. The technical reviewer is a competent qualified person being appointed for the scope this project falls under. The technical reviewer will not be considered to be part of the validation team and thus not involved in the validation.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

## 5) Final approval

After successful technical review of the final report, the request for registration can be started (in case of a positive opinion).

Considering the above mentioned technique, validation team found 07 Corrective Action Requests (CARs) and 01 Clarifications (CLs) as inconsistencies during the document review and site visit. The CARs and CLs raised by validation team are provided in Appendix 1 of this report.

## 2.6 Forward Action Requests

In this project activity, no forward action request has been raised by the validation team.

## 3 VALIDATION FINDINGS

### 3.1 Project Design

- Project type, technologies and measures implemented, and eligibility of the project**

The grouped project activity involves implementation of Solar Power projects in different location of India. Initially, there are five project activity instances included under this grouped project and more will be included under the grouped project in future. Presently there are five sites, one in Rajasthan and four in Telangana are included under this grouped project activity. The generated electricity from the project activity is being exported to the respective grids. The project activity is displacing the electricity generation from the NEWNE (for project instance in Rajasthan) and Southern grid (for project instances in Telangana), which otherwise would have been imported from the respective grids at the captive plants. The same was also confirmed during the site visit by physical inspection and interaction with PP. The main technological details of the solar projects are mentioned below:

#### **VCS Project for Solar Power Plant at Bhadla, Rajasthan:**

|                          |                                                                                |
|--------------------------|--------------------------------------------------------------------------------|
| Total Installed Capacity | 20MW                                                                           |
| PV Modules               | 36,288 nos. (245 Wp each)<br>52,488 nos. (250 Wp each)<br>Manufactured by CSun |
| Module technology        | Poly Crystalline                                                               |
| Inverters                | 30 nos.(680 kW each)<br>Manufactured by Schneider                              |
| Power Delivery point     | 33 kV grid sub-station (GSS) at Bhadla,<br>District – Jodhpur                  |

|                          |        |
|--------------------------|--------|
| DC Capacity of the plant | 22 MWp |
| AC Capacity of the plant | 20 MW  |

## **VCS Project for Solar Power Plant at Achampet, Telangana:**

|                          |                                                                       |
|--------------------------|-----------------------------------------------------------------------|
| Total Installed Capacity | 5MW                                                                   |
| PV Modules               | 18,380 nos. (300 Wp each), Manufactured by CSun                       |
| Module technology        | Poly Crystalline                                                      |
| Inverters                | 7 nos. (860 kVA each), Manufactured by Schneider Electric             |
| Power Delivery point     | 132/33 kV grid substation at Achampet, Dist. Mehaboobnagar, Telangana |
| DC Capacity of the plant | 5.5 MWp                                                               |
| AC Capacity of the plant | 5 MW                                                                  |

## **VCS Project for Solar Power Plant at Salakpur, Telangana:**

|                          |                                                            |
|--------------------------|------------------------------------------------------------|
| Total Installed capacity | 10MW                                                       |
| PV Modules               | 36,680 nos. (300 Wp each), Manufactured by YINGLI          |
| Module technology        | Poly Crystalline                                           |
| Inverters                | 14 nos. (680 kVA each), Manufactured by Schneider Electric |

|                          |                                                                                     |
|--------------------------|-------------------------------------------------------------------------------------|
| Power Delivery point     | 132 kV Grid Substation at Mustyal, Telengana which is the commercial metering point |
| DC Capacity of the plant | 11 MWp                                                                              |
| AC Capacity of the plant | 10 MW                                                                               |

## **VCS Project for Solar Power Plant at Alladurg, Telangana:**

|                          |                                                                                    |
|--------------------------|------------------------------------------------------------------------------------|
| Total Installed Capacity | 10MW                                                                               |
| PV Modules               | 36,680 nos. (300 Wp each), Manufactured by CSUN300-72P                             |
| Module technology        | Poly Crystalline                                                                   |
| Inverters                | 14 nos. (680 kVA each), Manufactured by Schneider Electric                         |
| Power Delivery point     | 132 kV Grid Substation at Peddashankarampet which is the commercial metering point |
| DC Capacity of the plant | 11.004 MWp                                                                         |
| AC Capacity of the plant | 10 MW                                                                              |

## **VCS Project for Solar Power Plant at Kalwakurthy, Dist. Mehabubnagar, Telangana:**

|                          |                                                            |
|--------------------------|------------------------------------------------------------|
| Total Installed Capacity | 10MW                                                       |
| PV Modules               | 37,940 nos. (290 Wp each), Manufactured by CSun            |
| Module technology        | Poly Crystalline                                           |
| Inverters                | 14 nos. (680 kVA each), Manufactured by Schneider Electric |

|                          |                                                                          |
|--------------------------|--------------------------------------------------------------------------|
| Power Delivery point     | 132/33 kV grid substation at Kalwakurthy, Dist. Mehaboobnagar, Telangana |
| DC Capacity of the plant | 11 MWp                                                                   |
| AC Capacity of the plant | 10 MW                                                                    |

The above technical description is verified by validation team during on site visit as well as document review i.e. Electrical Inspectorate approval letter for energisation for four project instances in Telangana and report of committee constituted for connectivity and metering equipment to inter connect solar plant at Bhadla to grid. The project is already commissioned. Commissioning details of all the solar PV projects are mentioned in section 1.4 of this report. As the capacity of the Individual projects are different, thus, PP has applied approved Baseline and monitoring methodology “AMS I.D.”, “Grid-connected renewable electricity generation”, version 18 and Baseline and monitoring methodology “ACM0002: Grid-connected electricity generation from renewable sources” version 16.0 for this grouped project. The methodology AMS- I.D is applied to all project instances with capacity less than 15MW which falls under the category of small scale project activity as per CDM terminology and ACM0002 is applied to all project instances with capacity more than 15MW which fall under the category of Large Scale project activity as per CDM terminology. As per CDM terminology, renewable Type I projects with capacity upto 15 MW are small scale projects and they can apply approved small scale CDM methodologies and projects with capacity more than 15 MW are large scale project and they can apply approved large scale CDM methodologies. In line with CDM requirements, one project activity instance with capacity more than 15 MW apply large scale methodologies i.e. ACM 0002 ver 16 and four project activity instances with capacity less than 15 MW apply small scale CDM methodology, AMS I.D ver 18 which is correct. Validation team has checked the supply contract /06/ of all projects and found correct.

- **Project proponent and other entities involved in the project**

Essel Mining & Industries Limited is the project proponent for this grouped project activity. They are entity responsible for coordinating and managing grouped project. This has been verified from the Agreements /06/ and commissioning certificates /08/.

- **Project start date**

The project consists of implementation of Solar Power Projects in different locations in India. Presently there are five project instances included under the grouped project activity. The earliest date of commissioning of the Solar Power Project is 12/03/2014 (Solar Power Project at Bhadla, Jodhpur, Rajasthan) and the same is considered as VCS project start date for this grouped project. Same has been verified from the commissioning certificate issued by Jodhpur DISCOM /8/.

The commissioning date of all other projects located in Telangana is mentioned in the table below:

| Name                                                                            | Village                 | Taluka        | District                | Commissioning date |
|---------------------------------------------------------------------------------|-------------------------|---------------|-------------------------|--------------------|
| VCS Project for Solar Power Plant at Achampet, Telangana                        | Achampet                | Achampet      | Mahabubnagar, Telangana | 07/07/2014         |
| VCS Project for Solar Power Plant at Kalwakurthy, Dist. Mahabubnagar, Telangana | Ternikal                | Kalwakurthy   | Mahabubnagar, Telangana | 30/06/2014         |
| VCS Project for Solar Power Plant at Salakpur, Telangana                        | Salakpur                | Maddur (Mdl.) | Warangal, Telangana     | 17/09/2014         |
| VCS Project for Solar Power Plant at Alladurg, Telangana                        | Bhiaramdhibba, Alladurg | -             | Medak, Telangana        | 28/07/2014         |

- Project crediting period**

Project crediting period is considered as 10 years and is renewable twice for grouped project. The start date of the crediting period is 12<sup>th</sup> March 2014 which is the date of commissioning of Bhadla Project located in Rajasthan and end date will be 11<sup>th</sup> March 2024. Thus crediting period is renewable crediting period from 12<sup>th</sup> March 2014 to 11<sup>th</sup> March 2024.

- Project scale and estimated GHG emission reductions or removals**

According to VCS standard,

Projects are categorized by size according to their estimated average annual GHG emission reductions or removals:

1) Projects: Less than or equal to 300,000 tonnes of CO<sub>2</sub>e per year.

2) Large projects: Greater than 300,000 tonnes of CO<sub>2</sub>e per year.

The estimated annual average GHG emission reductions from the initial Five project activity instances are 77,678 tCO<sub>2</sub>e per year, which is smaller than 300,000 tCO<sub>2</sub>e/ Year (inclusive of all five projects presently included under the grouped project). Thus the grouped project falls under the category of 'Projects'. Hence, URS Verification Pvt. Ltd. confirmed grouped project falls under the category of 'Projects'.

- Project location**

The project activity involves implementation of Solar Power projects in different Locations in India. Presently there are five project instances included under the grouped project out of which one is

located in the state of Rajasthan and other four are located in the state of Telangana. The Location details are provided below:

| Name                                                                            | Latitude  | Longitude | Village        | District                       |
|---------------------------------------------------------------------------------|-----------|-----------|----------------|--------------------------------|
| VCS Project for Solar Power Plant at Bhadla, Rajasthan                          | 27.561° N | 71.929° E | Bhadla         | Jodhpur, Rajasthan, India      |
| VCS Project for Solar Power Plant at Achampet, Telangana                        | 16.4° N   | 78.6° E   | Achampet       | Mahabubnagar, Telangana, India |
| VCS Project for Solar Power Plant at Kalwakurthy, Dist. Mahabubnagar, Telangana | 16.7° N   | 78.5° E   | Ternikal       | Mahabubnagar, Telangana, India |
| VCS Project for Solar Power Plant at Salakpur, Telangana                        | 17.89° N  | 79.05° E  | Salakpur       | Warangal, Telangana, India     |
| VCS Project for Solar Power Plant at Alladurg, Telangana                        | 17.94° N  | 77.92° E  | Bhiaramdhi bba | Medak, Telangana, India        |

The geo- coordinates and commissioning date of solar projects under the project activity are provided in section 1.4 of the report. Validation team has checked the location of solar PV projects during physical site visit and geographical coordinates are checked through GOOGLE EARTH and found to be correct. PP has also provided the declaration letters for Geo-coordinates for the location of the project instances under the grouped project dated 27/01/2016. The assessment team has checked the document and found it consistent with the information provided in VCS PD, hence accepted and closed out.

- **Conditions prior to project initiation**

The project Instances under the grouped project are green field projects. Same has been verified from the supply contracts /06/ issued by the PP. It was also confirmed during the site visit. Before implementation of proposed project activity, the equivalent amount of electricity was generated by the respective grids of India. After implementing the proposed project activity the generated electricity is being exported to the respective grids. The same has been cross checked with the Power Purchase Agreement as available in respective project locations.

- **Project compliance with applicable laws, statutes and other regulatory frameworks**

The Project has received necessary approvals for development and commissioning for each project instances from their respective state Nodal agencies and is in compliance to the local laws and regulations. Validation team has checked the commissioning certificate of all project instances and found correct. The Consent to Operate from respective Pollution Control Board is also checked for each project instances and found correct.

- **Ownership and other programs:**

- **Right of use**

PP has provided the Power Purchase Agreement, Supply contracts and commissioning certificates of all five project instances presently included under the grouped project. Supply contracts, power purchase agreements and the commissioning certificate /08/ were reviewed by validation team as rights of use accorded to the project proponents (Essel Mining and Industries Ltd.) and it is found to be acceptable. Essel Mining and Industries Ltd. have the right of use which is found to be correct.

- **Emissions trading programs and other binding limits**

The project instances under the proposed grouped project activity are not part of any other project and also not included in any other emission trading programs or binding limits. Furthermore, PPs have provided declaration letter /30/ that the grouped project is not involved in emission trading programs and other binding limits. Presently there are five project instances included under the grouped project and it is transparently mentioned in the declaration letter dated 25/02/2016 that all the five initial instances are not involved in any emission trading program or other binding limits.

- **Other forms of environmental credit sought or received and eligible to be sought or received**

The grouped project has not sought any other form of environmental credit and initial five project instances have not sought any other form of environmental credit. PP has provided declaration letter dated 01/12/2015.

The declaration /30/ provided by the PP mentions that project has not sought any other environmental Credits and the same is acceptable to the validation team.

- **Participation under other GHG programs**

The Grouped project has not participated under any other GHG programs. PP has provided declaration letter dated 01/12/2015. The initial five project instances have not participated under any other GHG program.

The declaration /30/ provided by the PP mentions that project has not participated under other GHG programs and same is acceptable to the validation team.

- **Rejection by other GHG programs**

Grouped project has not been rejected by other GHG programs. Presently, there are five project instances included under the grouped project and these five initial instances are not rejected by any other GHG program. PP has provided declaration letter dated 01/12/2015.

The declaration /30/ provided by the PP mentions that project has not rejected by any other GHG programs and same is acceptable to the validation team.

- **Additional information relevant to the project, including:**

- **Eligibility criteria for grouped projects**

The project activity is solely installed by Essel Mining & Industries Limited. It is a grouped project activity. The project involved with implementation of Solar Power Projects in different location in India. Additionality for the proposed grouped project activity is explained in the VCS-PD transparently.

The eligibility criteria of the grouped project activity are discussed below:

- 1) Applicability Conditions:** The project activity instances shall meet applicability conditions for applicable methodology AMS- I.D for all project instances with capacity less than 15MW and ACM0002 for all project instances with capacity more than 15MW. The details of the applicability conditions are discussed in following sections of the report. All five project activity instances meet the respective applicability conditions of methodology as detailed in subsequent sections and thus meet this eligibility condition.
- 2) Geographical Area:** The project activity instances to be included in the grouped project activity will be activities involving grid connected renewable electricity generation using solar Photovoltaic technology located within India. Presently, there are five project instances with Solar PV technology is included under the grouped project activity. URS Verification Private Limited has confirmed that all project instances included initially under the grouped project falls under the defined geographical area and thus meet this eligibility condition.
- 3) Baseline scenario:** All Project Activity Instances shall meet the baseline as defined in respective methodology. The details of baseline are discussed in following sections of the report. All initial project activity instances have the baseline as specified by respective methodology as detailed in subsequent sections and thus meet this eligibility condition.
- 4) Technology type:** The project activity instances to be included in the grouped project activity will be Greenfield activities involving grid connected renewable electricity generation using solar PV technology. The validation team has reviewed the documents related to initial five project instances and it is confirmed that the technology used is Grid connected Solar PV technology and all five project activity instances are Greenfield projects. Thus all initial five project activity instance meet this eligibility condition.
- 5) Additionality:** The project activity instances to be added as part of the grouped project will meet additionality criteria as set out in respective methodologies - for Small Scale Project instances with capacity less than 15MW, methodology AMS-ID is applicable and for Large Scale Project instances with capacity more than 15MW, methodology applicable is ACM0002. The details are discussed under the following sections in the report. For small scale projects as per CDM terminology, Tool for demonstration of additionality for small scale project activities will be used

Further for inclusion of Large Scale project activity instances having capacity more than 15MW with solar photovoltaic technology in to the grouped project, following condition will be fulfilled at the time of inclusion of project activity instance into the grouped project for project to be considered automatically additional (as per positive list of technologies as per ACM 0002 ver 16):

The percentage share of total installed capacity of the specific technology (solar PV) in the total installed grid connected power generation capacity in the host country is equal to or less than two per cent. At the time of inclusion of project instances with capacity more than 15MW, the percentage share must be less than 2% of the total installed grid connected Solar PV power generation capacity.

There are four project activity instances which is less than 15 MW and it is auto additional project as it falls in the positive list of technologies that are defined as automatically additional as per CDM tool on Demonstration of additionality for small scale project activities. There is one project activity instance at Bhadla which has capacity more than 15 MW. PP has demonstrated that share of total installed capacity of the solar power generation in the total installed grid connected power generation capacity in India is 1.44% which is less than 2 % and thus these falls in positive list of technologies defined as automatically additional as per para 30 of CDM methodology ACM 0002 ver 16. Thus all five initial project activity instances meet this eligibility condition.

- 6) **Start Date:** The start date of each project activity instance under the grouped project should not be prior to the start date of the grouped project. The start date of each project activity instance will be determined through documentary evidence. The start date of all initial five instances is determined based on documentary evidence i.e. commissioning certificate and start date of grouped project is 12<sup>th</sup> March 2014 which is commissioning of project activity instance at Bhadla project. The start date of all other project instance is after this date. Thus all five project activity instance meets this eligibility criteria.
- 7) PP has included eligibility criteria to avoid double counting of emission reductions like unique identifications of project and claiming emission reduction only under one GHG program. All initial five project activity instance are identified by unique identification by latitude and longitude. PP has provided declaration and all project activity instance are not participating under any other GHG program and thus would be claiming emission reductions under VCS only. Thus there would be no double counting of emission reductions.
- 8) PP has included a eligibility criteria that each project activity instance will meet grouped Project specific requirements stipulated by the Entity responsible for coordinating and managing grouped project for conducting local stakeholder consultations and environmental impact assessment (EIA), as applicable. All project activity instances have conducted local stakeholder consultation. Solar PV projects are not required to conduct EIA as per EIA notification of Ministry of Environment, Forest & Climate Change, Government of India.
- 9) The project activity using solar PV project will supply electricity to grid. All five initial project activity instance supply electricity to grid and thus meets this eligibility condition.

- **Leakage management for AFOLU projects**

The project activity is not an AFOLU project. Thus same is not applicable to this project activity.

- **Commercially sensitive information**

All the information required for the VCS validation of this project activity has been provided by the PP and thus, there is no commercially sensitive information in this project activity, which has been excluded from the public version of the project description.

URS is able to verify all the documented evidence for all five project instances initially included under the grouped project listed above in relevant sections during the validation process and is able to confirm that data and considerations are complete and accurate. All the project instances under the grouped project are Solar PV technology based Power generation. The grouped project activity as a whole would contribute towards sustainable development of the host country India. PP has described contribution of grouped project in terms of social well being, economic well being, technological well being and environmental well being. The same has been checked and found to be correct.

Moreover URS confirms that the description of the proposed VCS grouped project activity and description for all five project instances initially included under the grouped project, as contained in the VCS DD sufficiently covers all relevant elements, is accurate and complete and that it provides the reader with a clear understanding of the nature of the proposed grouped VCS project activity

## 3.2 Application of Methodology

### 3.2.1 Title and Reference

The proposed grouped project activity is an installation of grid connected solar power project in India. The project applies CDM approved Baseline and monitoring methodology titled “Grid connected renewable electricity generation” “AMS I.D.”, Version 18 for all project instances with capacity less than 15MW in line with CDM terminology and CDM methodology “ACM0002: Grid-connected electricity generation from renewable sources” version 16.0/11/ for all project instances with capacity more than 15MW. Validation team checked the same and found that PP has appropriately applies the small scale methodology for this project for four project activity instances which are less than 15 MW and PP has used CDM large scale methodology ACM 0002 ver 16 for project activity instance at Bhadla which is more than 15 MW . Initially, there are five project instances included under the grouped project and PP has applied the correct approved baseline and Monitoring methodologies to the respective projects. The PP has also applied the tool “Tool to calculate the emission factor for an electricity system”, version 05.0.0 for calculating the grid emission factor for NEWNE and Southern grid. Validation team has checked the same and found to be correct.

### 3.2.2 Applicability

The proposed project activity is an installation of grid connected Solar power project in India. This is a grouped project activity and presently there are five project instances included under this proposed project activity. The project applies approved Baseline and monitoring methodology “AMS I.D.”, Version 18 /11/ for project instances with capacity less than 15MW and “ACM0002: Grid-connected electricity generation from renewable sources” version 16.0 for project instances with capacity more than 15MW.

Applicability of AMS I.D., version 18 is illustrated as below:

**Para 2** “This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass:

- (a) Supplying electricity to a national or a regional grid; or
- (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling”

The proposed VCS project activity is a grouped project consisting Solar energy power plant i.e. it is renewable energy generation project using Solar PV technology, which is supplying the generated electricity to the identified grid under which the project instance falls. Initially, there are four project instances with capacity less than 15MW are included under the grouped project. The four project activities with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana; 10 MW Solar Project at Kalwakurthy in Telangana; 10MW Solar Project at Salakpur village in Telangana; 10MW Solar Project at Alladurg in Telangana. All project instances are grid connected Solar PV technology as confirmed during the site visit. The grid connectivity of the four projects is verified with Power Evacuation Clearance as provided by the respective DISCOM Authority /14/ and power purchase agreements. This has also been verified during the site visit and found to be acceptable. Hence, the project activity complies with the applicability criteria (b) of the baseline and monitoring methodology AMS-I. D. Version 18.

**Para 3**, “Illustration of respective situations under which each of the methodology (i.e. “AMS-I.D.: Grid connected renewable electricity generation”, “AMS-I.F.: Renewable electricity generation for captive use and mini-grid” and “AMS-I.A.: Electricity generation by the user) applies is included in the appendix

The project activity supplies the generated electricity to the respective grid as identified. Thus, the project activity complies with the requirement of the methodology AMS-I.D as per the illustration provided in the Table 2 of the applied baseline and monitoring methodology AMS-I.D version 18. Initially, there are four project instances with capacity less than 15MW are included under the grouped project. The four project activities with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana, 10 MW Solar Project at Kalwakurthy in Telangana, 10MW Solar Project at Salakpur village in Telangana, 10MW Solar Project at Alladurg in Telangana. The grid connectivity of the project was verified with Power Purchase Agreement and Power Evacuation Clearances as provided by the respective DISCOM/14/ for the specific project activity instances. This has also been verified during the site visit and found to be correct.

**Para 4**, “This methodology is applicable to project activities that: (a) Install a Greenfield plant; (b) Involve a capacity addition in (an) existing plant(s); (c) Involve a retrofit of (an) existing plant(s); or (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s).”

The project activity involves the installation of a new Solar power plant where there was no renewable energy power plant operating prior to the implementation of the project activity. Initially, there are four project instances with capacity less than 15MW are included under the grouped project. The four project activities with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana, 10 MW Solar Project at Kalwakurthy in Telangana, 10MW Solar

Project at Salakpur village in Telangana, 10MW Solar Project at Alladurg in Telangana. All the four project instances under the proposed VCS grouped project activity is a Greenfield project activity which is evident from the supply contract /06/ and the commissioning certificates /08/ of respective project instances. This has also been verified during the site visit. Hence, the project activity meets the applicability criteria.

**Para 5** – “Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:

- a) The project activity is implemented in an existing reservoir with no change in the volume of reservoir;
- b) The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m<sup>2</sup>;
- c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m<sup>2</sup>.”

The project activity involves the use of Solar energy for the generation of power. Initially, there are four project instances with capacity less than 15MW are included under the grouped project. The four project activities with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana, 10 MW Solar Project at Kalwakurthy in Telangana, 10MW Solar Project at Salakpur village in Telangana, 10MW Solar Project at Alladurg in Telangana. All the project instances are grid connected Solar Power project as confirmed during site visit. As it is not a hydro power plant, this criteria is not applicable to the project activity under consideration

**Para – 6**, “If the new unit has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.”

The project activity envisages the use of renewable energy only i.e. Solar energy and there is no non renewable component in the project activity in all four project activity instances. The capacity less than 15MW of the project instances are considered for this methodology only. Initially, there are four project instances with capacity less than 15MW are included under the grouped project. The four project activities with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana, 10 MW Solar Project at Kalwakurthy in Telangana, 10MW Solar Project at Salakpur village in Telangana, 10MW Solar Project at Alladurg in Telangana. The capacity of project instances presently included under the grouped project is verified from the commissioning certificates and during site visit/08/ of respective project instances and found to be correct.

**Para – 7**, “Combined heat and power (co-generation) systems are not eligible under this category.”

The project activity is a Solar energy project. Initially, there are four project instances with capacity less than 15MW are included under the grouped project. The four project activities with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana, 10 MW Solar Project at Kalwakurthy in Telangana, 10MW Solar Project at Salakpur village in Telangana,

10MW Solar Project at Alladurg in Telangana. The project activity instances are not a cogeneration system and this has been verified during the site visit.

**Para – 8,** “In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.”

Initially, there are four project instances with capacity less than 15MW are included under the grouped project. The four project activities with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana, 10 MW Solar Project at Kalwakurthy in Telangana, 10MW Solar Project at Salakpur village in Telangana, 10MW Solar Project at Alladurg in Telangana. The project instances under the proposed VCS grouped project activity is a Greenfield project activity which is evident from the supply contract/06/ of respective project instances issued by the PP and does not involve the addition of renewable energy generation units at an existing renewable power generation facility and it has also been verified during the site visit for four sites.

**Para – 9,** “In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW”

Initially, there are four project instances with capacity less than 15MW are included under the grouped project. The four project activities with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana, 10 MW Solar Project at Kalwakurthy in Telangana, 10MW Solar Project at Salakpur village in Telangana, 10MW Solar Project at Alladurg in Telangana. The project activity instances under the proposed VCS grouped project activity is a Greenfield project activity which is evident from the Commissioning certificate/08/ of respective project instances issued by the respective DISCOM. The project instances does not involve retrofit and/or replacement, modifications to the existing equipment.

**Para-10,** In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as “AMS-I.C.: Thermal energy production with or without electricity” shall be explored.

Initially, there are four project instances with capacity less than 15MW are included under the grouped project. The four project activities with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana, 10 MW Solar Project at Kalwakurthy in Telangana, 10MW Solar Project at Salakpur village in Telangana, 10MW Solar Project at Alladurg in Telangana. The project instances under the proposed VCS grouped project activity is a Solar Energy based Greenfield project activity which is evident from the commissioning certificate/08/ of the project instances issues by respective DISCOM. The same is also checked during the site visit and is not involved in landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions. Thus, this criteria is not applicable.

**Para-11,** In case biomass is sourced from dedicated plantations, the applicability criteria in the tool “Project emissions from cultivation of biomass” shall apply

Initially, there are four project instances with capacity less than 15MW are included under the grouped project. The four project activities with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana, 10 MW Solar Project at Kalwakurthy in Telangana, 10MW Solar Project at Salakpur village in Telangana, 10MW Solar Project at Alladurg in Telangana. All project activity instances involve the use of solar energy for the generation of power. As it is not a biomass power plant, this criteria is not applicable to the project activity under consideration.

For the project instances with capacity more than 15MW, baseline methodology ACM0002 is applied. Initially, there is only one project instance with capacity more than 15MW is included under the grouped project activity located in Bhadla, Rajasthan. All applicability conditions are explained below:

**Para-1,** This methodology is applicable to grid-connected renewable energy power generation project activities that

- a) install a Greenfield power plant;
- b) involve a capacity addition to (an) existing plant(s);
- c) involve a retrofit of (an) existing plant(s)/unit(s);
- d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or
- e) involve a replacement of (an) existing plant(s)/unit(s).

Initially, there is only one project instance with capacity more than 15MW is included under the grouped project activity located in Bhadla, Rajasthan. The project activity instance under the proposed grouped project activity involves installation of Greenfield grid connected solar power plant. The same has been checked with the commissioning certificate of the project instance located in Bhadla provided by respective DISCOM/08/ and found correct.

**Criteria-2,** The methodology is applicable under the following conditions:

- a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, **solar power plant/unit**, wave power plant/unit or tidal power plant/unit;
- b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.

The proposed grouped project will include project activity instances which are renewable energy power plants based on solar PV technology. Initially, there is only one project instance with capacity more than 15MW is included under the grouped project activity located in Bhadla, Rajasthan. The project activity instance is a green connected Solar PV technology power plant.

The same is confirmed during the validation site visit. Hence this condition is applicable to the project activity.

There is no capacity addition in the grouped project activity. Initially, there is only one project instance with capacity more than 15MW is included under the grouped project activity located in Bhadla, Rajasthan. The project instance included under the grouped project activity is Greenfield project activities. The same has been checked with the commissioning certificate/08/ of Solar Power project at Bhadla and also confirmed during site visit. Hence, this criteria is not applicable.

**Criteria-3,** In case of hydro power plants, one of the following conditions shall apply:

- a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or
- b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3), is greater than 4 W/m<sup>2</sup>; or

The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m<sup>2</sup>; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m<sup>2</sup>, all of the following conditions shall apply: (i) The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m<sup>2</sup>; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m<sup>2</sup> shall be: a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project.

The grouped project activity is a Solar Power project and is not a hydro project. Initially, there is only one project instance with capacity more than 15MW is included under the grouped project activity located in Bhadla, Rajasthan. The project instance included under the grouped project activity is Greenfield project activities. The same has been checked with the commissioning certificate/08/ of Solar Power project at Bhadla. Thus, this criteria is not applicable. The same is also checked during the site visit and found correct.

**Criteria-4,** In the case of integrated hydro power projects, project proponent shall:

1. Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or
2. Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.

The project activity is not a hydro project. The project instance included under the grouped project activity is Greenfield project activities. The same has been checked with the commissioning certificate/08/ of Solar Power project at Bhadla. The project instance consists of solar power projects. The same is checked during the site visit and found correct. Hence, this criteria is not applicable.

**Criteria-5,** The methodology is not applicable to the following:

- a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;
- b) Biomass fired power plants/units.

The project instance included under the grouped project activity is solar PV Greenfield project. The grouped project activity is a green field solar PV power plants and do not involve switching from fossil fuels to renewable energy sources at the sites of the project or Biomass fired power plants/units. The same is checked during the site visit and found correct. Hence, this criteria is not applicable.

**Criteria-6,** In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.

The project instance included under the grouped project activity is Greenfield project activities. It does not involve retrofits, rehabilitations, replacements, or capacity additions. The same has been checked with the commissioning certificate/08/ of Solar Power project at Bhadla and also confirmed during the site visit and found correct. Thus, this criteria is not applicable.

The following methodological Tools used for the project activity instances using the methodology AMS-I.D version 18.0:

- 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> )

As there are no project or leakage emissions in any of the four project activity instances, Tool to calculate project or leakage CO2 emissions from fossil fuel combustion is not applicable. Tool to determine remaining lifetime of equipment is also not applicable as all the five project activity instances are Greenfield projects. Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period provides a stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period and as the project is requesting registration, it is not applicable. Tool to calculate emission factor for an electricity system is applicable as the project displaces electricity from grid and tool is used to calculate emission factor and project is not located in Annex I country and it is not a bio fuel project.

The following methodological Tools used for the project activity instances using the methodology ACM0002 version 16.0:

- 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>)

The one project activity instance using this methodology is automatically additional as it falls under the positive list of technologies as per para 30 of methodology and thus Tool for the demonstration and assessment of additionality and Combined tool to identify the baseline scenario and demonstrate additionality are not applicable. As there are no project or leakage emissions in project activity instance at Bhadla, Tool to calculate project or leakage CO2 emissions from fossil fuel combustion is not applicable. Tool to determine remaining lifetime of equipment is also not applicable as all the five project activity instances are Greenfield projects. Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period provides a stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period and as the project is requesting registration, it is not applicable. Tool to calculate emission factor for an electricity system is applicable as the project displaces electricity from grid and tool is used to calculate emission factor and project is not located in Annex I country and it is not a bio fuel project.

Thus, all the applicability criteria of AMS I.D, version 18 and ACM0002 version 16.0 and Tools used have been duly addressed and justified. Hence, from the above discussion, it has been confirmed that the project activity instances with capacity less than 15MW meets all the applicability of the selected methodology AMS-I.D, version 18 and all the Tools used as discussed above and the project activity instances with capacity more than 15MW meets all the applicability of the selected methodology ACM0002 version 16.0 including all the Tools used as discussed above /11/ to the proposed project activity.

Based on the document review and on-site visit, URS hereby confirms that the selected baseline and monitoring methodology AMS-I.D version 18.0 is applicable to the Project with capacity less than 15MW. The four project activity instances with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana, 10 MW Solar Project at Kalwakurthy in Telangana, 10MW Solar Project at Salakpur village in Telangana, 10MW Solar Project at Alladurg in Telangana which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity for registration. It is also confirmed based on the document review and on-site visit, URS hereby confirms that the selected baseline and monitoring methodology ACM0002 version 16.0 is applicable to the Project with capacity more than 15MW at Bhadla. Initially there is one project activity instance located in Bhadla, Rajasthan is included under the grouped project which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity for registration. It is also confirmed that the methodology is correctly applied by comparing it with the actual text of the applicable version of the methodology. Thus grouped project meets applicability conditions of respective methodologies.

### 3.2.3 Project Boundary

According to the para 18 of the approved baseline and monitoring methodology “AMS I.D.”, “Grid connected renewable electricity generation”; Version 18 and paragraph 21 of the methodology ACM002 (Version 16) /11/, “The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to”.

Thus, the project boundary for each of the project activity instance as part of the proposed grouped project activity will consist of PV installation, connected substations, metering equipment and the respective grid. Presently there are five project instances included under this grouped project. Four project instances fall under the Southern grid whereas one project instance falls under NEWNE grid. The boundary of each project activity instance will be within the boundary of the grouped project as a whole. All five project instances are located in India and the project boundary as mentioned is same for all five project activity instances. The same has been confirmed with the commissioning certificate of the respective project instances and also by the subsequent site visits of respective project sites. The project activity instance at Bhadla evaluates power to NEWNE grid and four project activity instances in Telangana evacuate power to Southern grid.

Same was verified during the site visit and through the commissioning certificates and Power evacuation approval letter /08/14/. The NEWNE and Southern grid of India has been correctly identified for calculation of electricity emission factor as the project displaces an equivalent amount of electrical energy from the respective grid. The grid is identified as per the CEA database version 10 available at the time of submission of VCS-PD/01/ to the VCS Registry for listing of project. The project is listed in VCS database on 03/11/2015 before opening meeting between URS and project proponent and is found correct at [http://www.vcsprojectdatabase.org/#/pipeline\\_details/PL1497](http://www.vcsprojectdatabase.org/#/pipeline_details/PL1497).

The energy generating equipment is new and they are not transferred from another activity. The same was verified during site visit and also verified from review of purchase orders and commissioning certificates. In line with AMS I.D version 18.0 and ACM0002 version 16.0, there are no leakage emissions. The electricity imported by the project activity is accounted in the net electricity exported by the project activity,  $EG_{PJ,y}$ . There are no other sources of project emissions. In line with the methodology, for most renewable energy project activities,  $PE_y = 0$ . As per AMS I.D ver 18 and ACM0002 version 16.0, leakage is not considered for solar energy projects which is correct.

| Source   |                                                                                          | Gas              | Included? | Justification/Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|------------------------------------------------------------------------------------------|------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Baseline | Fossil fuel fired power plants connected to integrated Grid of Indian Electricity System | CO <sub>2</sub>  | Yes       | The generated electricity is exported to the respective grids of India. Initially there are five project instances located at Achampet, Kalwakurthy, Alladurg, Salakpur village and Bhadla are included under the grouped project activity. In the baseline scenario, equivalent amount of electricity would have been generated by mainly fossil fuel power plants connected to respective grids resulting in CO <sub>2</sub> emissions; hence the same is accepted by the validation team. |
|          |                                                                                          | CH <sub>4</sub>  | No        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|          |                                                                                          | N <sub>2</sub> O | No        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Project  | Not Applicable                                                                           | CO <sub>2</sub>  | No        | All the project activity instances would be renewable energy power generation through solar PV technology. Hence according to paragraph 39 of methodology AMS.I.D (Version 18) and paragraph 35 of methodology ACM002 (Version 16), the project emissions will be zero. In line with methodology, there are no project emissions for Solar energy projects; hence the same is accepted by validation team.                                                                                   |
|          |                                                                                          | CH <sub>4</sub>  | No        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|          |                                                                                          | N <sub>2</sub> O | No        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

There are no emission sources will be affected by the implementation of the proposed project activity and are not addressed by the applied methodology and which are expected to contribute more than 1% of the overall expected average annual emissions reduction. The project activity is a solar energy power project and during site visit no other sources were observed which are not addressed by methodology.

During the site visit, the project boundary was physically verified of all five project activity instances and found to be correct and in line with methodology. Based on the document review and site visit, validation team confirms that the project boundary and emission sources described in the VCS-PD are accurate and complete, and also that the selected sources and gases are justified for the all project activity instances under the proposed grouped project activity. Validation team further confirms that identification of project boundary is in line with selected methodology AMS I.D version 18.0 and ACM0002 version 16.0. In conclusion, geographical area of grouped project is reasonable.

### 3.2.4 Baseline Scenario

The generated electricity from the project instances under the grouped project is exported to the respective grids of India. The validation team has checked this during the site visit and this was further confirmed from the power purchase agreement as a part of project instances. According to the para 19 of approved baseline and monitoring methodology “AMS-I.D”, “Grid connected renewable electricity generation”, version 18 of 28/11/2014 /11/ the baseline scenario is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources in to the grid. The same baseline is considered for four project activity instances in Telangana that apply CDM methodology AMS-I.D ver 18. Further, the paragraph 23 of ACM0002 (version 16) defines baseline scenario as – “If the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources. The same baseline is applied by project activity instance at Bhadla that apply large scale methodology ACM 0002 ver 16. Since the approved methodology specifies the baseline scenario, no further analysis is required on the identification of alternative. Thus for Greenfield projects, same baseline is prescribed by CDM methodologies AMS-I.D ver 18 and ACM 0002 ver 16. As all the initial project activity instances in grouped project are Greenfield projects, same baseline is defined for entire geographical area i.e. India which meets requirements of grouped projects as per VCS standard ver 3.5.

Assessment team has checked all the documented evidences such as CO2 Baseline Database for the Indian Power Sector user guide, version 10, applied methodology AMS I.D., version 18 and ACM0002 version 16.0, revised VCS-PD version 02/01/ and the emission reduction calculation spreadsheet during the validation process and confirmed that all the assumptions and data used by the project participants which are listed in the PD/01/ version 02 including their references and sources, the approved baseline methodology AMS I.D., version 18 and ACM0002 version 16.0 /11/ have been correctly applied to identify the most reasonable baseline scenario. The identified baseline scenario reasonably represents what would occur in the absence of the proposed project activity.

The baseline emission is the electricity produced by the renewable generating unit multiplied by grid emission factor (measured in tCO<sub>2</sub>e/MWh) calculated in transparent and conservative manner. The PP has considered the baseline in line with what is prescribed by the methodology. The emission factor is calculated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM). The grid emission factor has been calculated by using the CEA database version 10 /09/ and it is based on “Tool to calculate the emission factor for an electricity system”, version 05 /24/.

According to the “Tool to calculate the emission factor for an electricity system”, the weighting of OM and BM has been taken as 75:25 owing to their intermittent and non dispatchable nature. The combined margin emission factor for the NEWNE grid of India has been calculated to be 0.9770 tCO<sub>2</sub>e/MWh /02/ and is fixed ex-ante for the entire crediting period. The crediting period is considered as 10 years which can be renewed twice. The combined margin emission factor for the Southern grid of India has been calculated to be 0.9817 tCO<sub>2</sub>e/MWh /02/ and is fixed ex-ante for the entire renewable crediting period of 10 years.

Validation team confirmed that the CEA database version 10 used for the calculation of combined margin emission factor for the NEWNE and Southern grid of India was latest data available at the time of submission of VCS-PD for validation and is in line with the requirement of “Tool to calculate the emission factor for an electricity system”, version 05.0 and is an official publication of the Government of India for the purpose of CDM project activities.

The approved methodology AMS I.D., version 18 and ACM0002 version 16.0 has been correctly applied to identify the most reasonable baseline scenario as the electricity delivered to the grid by the project activity that otherwise would be generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid. The methodology prescribes baseline for new grid connected power plants and same is mentioned in VCS-PD/01/ hence accepted by the validation team.

URS is able to verify all the documented evidence listed above during the validation process and is able to confirm that:

- a) All the assumptions and data used by the project participants are listed in the VCS-PD, including their references and sources;
- b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the VCS-PD.
- c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and deemed to be reasonable;
- d) The applied methodology AMS I.D and ACM0002 has been correctly applied to identify the most reasonable baseline scenario as the electricity delivered to the grid by the project activity that otherwise would be generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.
- e) The applied methodology AMS I.D and ACM0002 has been correctly applied to identify the most reasonable baseline scenario for the grouped project activity.

All of the project activity instances (including the initial project activity instances and new instances will be added to the grouped project) has the same baseline scenario: Electricity delivered to the grid by the project activity instances would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in Tool to calculate the emission factor for an electricity system.

It is confirmed that the electricity delivered to the grid by the project activity instances would have otherwise been generated by the operation of grid-connected power plants as reflected in the combined margin (CM) calculations described in Tool to calculate the emission factor for an electricity system.

URS Verification Pvt. Ltd. reviewed the project instances description and supporting evidence regarding the technology applied, the modalities of electricity output and connection to the grid and determined that the baseline determination for the initial five project instances is accurate, justified, and in accordance with the applicable methodologies. Thus for Greenfield projects,

same baseline is prescribed by CDM methodologies AMS-I.D ver 18 and ACM 0002 ver 16. As all the initial project activity instances in grouped project are Greenfield projects, same baseline is defined for entire geographical area i.e. India which meets requirements of grouped projects as per VCS standard ver 3.5.

### 3.2.5 *Additionality*

The additionality for the grouped project activity instances to be included in the grouped project activity under consideration is being demonstrated in the VCS-PD. Hence, there is no requirement for demonstration of additionality at individual project instances that become part of the grouped project activity level.

The grouped project activity under consideration will consist of small scale project activity instances as well as large scale project activity instances. Accordingly the additionality for respective types of project activity instances is demonstrated by the PP.

#### **Small scale project activity instances as per CDM terminology:**

Additionality for the small scale project activity instances to be included in the proposed grouped project activity is discussed below:

As per para 10 of Tool for demonstration of additionality for small scale project activities, it has to demonstrated that the project activity would not have occurred anyway due to at least one of the following barriers:

- a) **Investment barrier:** a financially more viable alternative to the project activity would have led to higher emissions;
- b) **Technological barrier:** a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions
- c) **Barrier due to prevailing practice:** prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions;
- d) **Other barriers:** Without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.

Further, in line with paragraph 11 of the said methodological tool, documentation of barriers is not required for the positive list of technologies and project activity types that are defined as automatically additional for project sizes up to and including the small-scale CDM thresholds (e.g. installed capacity up to 15 MW).

The positive list of Technologies are given below:

- a) Solar technologies (photovoltaic and solar thermal electricity generation);
- b) Off-shore wind technologies;
- c) Marine technologies (wave, tidal).

- d) Building-integrated wind turbines or household rooftop wind turbines of a size up to 100 kW;

The project instances under the grouped project activities are solar power projects, hence this is deemed to be auto additional as per the Tool used. The assessment team has checked the applied Tool and found the information correct and consistent.

The small scale project activity instances to be included in the proposed grouped project activity will be grid connected solar photovoltaic electricity generation projects having capacity upto 15 MW. Initially, there are four Solar PV project instances with capacity less than 15MW are included under the grouped project. The four project activities with capacity less than 15MW are 5 MW Solar Project at Achampet in Telangana, 10 MW Solar Project at Kalwakurthy in Telangana, 10MW Solar Project at Salakpur village in Telangana, 10MW Solar Project at Alladurg in Telangana. Thus, these will fall under the positive list of technologies as mentioned above.

Presently there are five project instances included under the grouped project activity. There are four project instances included under the grouped project which has capacity upto 15MW. The same has been checked with the commissioning certificate provided by the respective grid. Further it was also confirmed during the validation site visit and found correct. Thus, the additionality for small scale project activities to be included under the grouped project activity are demonstrated corrected and considered to be accepted.

**For large scale project activity instances as per CDM terminology:** Additionality for the large scale project activity instances (capacity more than 15 MW) to be included in the grouped project activity under consideration are demonstrated by the PP in the VCS-PD.

For demonstration of additionality of large scale project activity instances, Simplified procedure to demonstrate additionality is used by the PP which is in line with paragraph 29 of methodology ACM0002 (version 16.0).

Section “**5.3.1. Simplified procedure to demonstrate additionality**” of ACM0002 (version 16.) states following:

*The simplified procedure to demonstrate additionality is applicable to the following grid connected electricity generation technologies (positive list):*

- (a) *Solar photovoltaic technologies;*
- (b) *Solar thermal electricity generation including concentrating Solar Power (CSP);*
- (c) *Off-shore wind technologies;*
- (d) *Marine wave technologies;*
- (e) *Marine tidal technologies.*

The large scale project activity instances to be included into the grouped project activity will use Solar Photovoltaic Technology for power generation. Hence in line with requirements, the Simplified procedure to demonstrate additionality can be used for demonstrating additionality of the project activity instances.

Further, paragraph 30 of the methodology ACM0002 (version 16.0) states as follows:

*A specific technology in the positive list is defined as automatically additional if at the time of PDD submission any of the following conditions is met:*

- (a) *The percentage share of total installed capacity of the specific technology in the total installed grid connected power generation capacity in the host country is equal to or less than two per cent; or*
- (b) *The total installed capacity of the technology in the host country is less than or equal to 50 MW.*

Presently there is one project activity instance at Bhadla included under the grouped project with capacity more than 15MW. The same has been checked with the commissioning certificate provided by the Jodhpur DISCOM. Further, the same has been confirmed during the site visit and found correct.

All India Installed Capacity of Power Stations report published by CEA provides details of installed capacity in India according to technology of power generation. The assessment team has checked the report of CEA at [http://www.cea.nic.in/reports/monthly/installedcapacity/2015/installed\\_capacity-10.pdf](http://www.cea.nic.in/reports/monthly/installedcapacity/2015/installed_capacity-10.pdf)

According to this report, percentage share of total installed capacity of the solar power generation in the total installed grid connected power generation capacity in India is 1.44%. This value is checked in the report of CEA and is found correct. The percentage share is below two percent. It is also observed that the solar power generation capacity as defined in the report includes Solar PV Technology along with Solar Thermal Power Generation technology. Hence the percentage share of total installed capacity of Solar Photovoltaic technology is less than 1.44% is considered to be correct. The details of installed capacities of various technologies are given in tables below.

The technology wise breakup of total installed power generation capacity in India as provided in the CEA's said report is as follows:

| Technology                               | Thermal    | Nuclear  | Hydro     | Renewable Energy Sources | Total      |
|------------------------------------------|------------|----------|-----------|--------------------------|------------|
| <b>All India Installed Capacity (MW)</b> | 195,604.44 | 5,780.00 | 42,473.42 | 36,470.64                | 280,328.50 |

The report also provides the breakup of Renewable Energy Sources' installed capacity:

| Technology                               | Wind Power | Bio Power – BM Power / Cogeneration | Bio Power – Waste to energy | Solar Power | Total     |
|------------------------------------------|------------|-------------------------------------|-----------------------------|-------------|-----------|
| <b>All India Installed Capacity (MW)</b> | 23,762.81  | 4,418.55                            | 127.08                      | 4,060.65    | 36,470.64 |

From the above details it is evident that the total installed capacity of solar power technology is 4,060.65 MW out of total installed capacity in India of 280,328.50 MW. As per the data from the CEA, it is concluded that the percentage share of total installed capacity of the solar power generation in the total installed grid connected power generation capacity in India is 1.44%.

The assessment team has reviewed the report and the methodology and the details as discussed above are found correct. Since the data provided above are from the Government official data,

hence considered to be correct. Hence, the project activity considered to be additional which is in line with paragraph 29 and 30 of methodology ACM0002 (version 16.0) for all Large scale project activities included under the grouped project.

URS is able to confirm that all data, rationales, assumptions, justifications and documentation provided by the PPs to support demonstration of additionality are credible and reliable.

For the grouped project, electricity system referred as the grids controlled by Southern Grid and NEWNE grid. The initial project activity instances and the future instances to be included have the same baseline scenario and rationale for the demonstration of additionality for the following reasons:

Steps for the demonstration of additionality are the same for all of the project activity instances (including the initial project activity instances and new instances will be added to the grouped project). For this project activity, PP has demonstrated that the share of installed capacity of PV plant in India is lower than 2%, the project instance is additional. According to the conclusion of Section 2.5 of the VCS-PD, the grouped project is additional, that is to say all of the project activity instances (including the initial project activity instances and new instances will be added to the grouped project) are additional. Therefore, the rationale for the demonstration of additionality are the same for all of the project activity instances, including the initial project activity instances and new instances will be added to the grouped project. For new project activity instances to be added in future, PP has included eligibility condition on additionality.

By assessing the evidences presented and cross-checking the information contained in, URS considers the reasoning for the proposed project additionality demonstration is credible and reasonable i.e. the proposed project has the ability to reduce anthropogenic emissions of greenhouse gases by sources below those that would have occurred in the absence of the registered VCS project activity.

Thus, it is confirmed that the grouped project activity is demonstrated as additional. It is further confirmed that the additionality has been demonstrated correctly and transparently for project activity instances. .

### 3.2.6 *Quantification of GHG Emission Reductions and Removals*

The project activity uses the simplified baseline and monitoring methodology AMS I.D version 18 and ACM0002 version 16.0/11/. The applicability conditions of the methodology have been discussed in section above. The PP has correctly identified the baseline as paragraph 19 of the methodology. This has been described in section above.

The calculation and formulae as addressed in the approved baseline and monitoring methodology AMS-I.D version 18 and ACM0002 version 16.0 /11/ have been applied.

There are no leakage emissions as detailed in subsequent paragraphs and in line with paragraph 43 of methodology AMS.I.D (version 18.0) and paragraph 61 of methodology ACM0002 (version 16.0), net GHG emission reductions are calculated as follows

$$ER_y = BE_y - PE_y$$

The emission reductions E<sub>Ry</sub> by the project activity during the crediting period is the difference between the baseline emissions B<sub>Ey</sub>, project emissions P<sub>Ey</sub> and emissions due to leakage L<sub>Ey</sub>, as following:

#### Quantification of Baseline Emissions:

The baseline emissions for the project activity have been calculated as the product of the net electricity supplied to the respective grid by the Solar project instances and combined margin emission factor of the respective grid. The combined margin (CM), consisting of the combination of weighted average operating margin (OM) and build margin (BM), has calculated to be 0.9770 tCO<sub>2</sub>/MWh for NEWNE grid and 0.9817 for Southern grid which have been sourced from the Central Electricity Authority (CEA) CO<sub>2</sub> Baseline database version 10.0, in line with the “Tool to calculate the emission factor for an electricity system” ver. 5.

Plant Load Factor (PLF) considered in Emission reduction calculation is sourced from the document submitted to the Bank for Loan. PP has provided copy of proposal for loan term secured loan and covering letter which is stamped as received by respective banks for initial five project activity instances. The assessment team agrees with the PLF as it is sourced from the bank loan application and also it is in line with Annex 11 of EB 48. The PLF of initial five project activity instances are as follows

| Name                                                                            | PLF    |
|---------------------------------------------------------------------------------|--------|
| VCS Project for Solar Power Plant at Bhadla, Rajasthan                          | 17.1%  |
| VCS Project for Solar Power Plant at Achampet, Telangana                        | 16.68% |
| VCS Project for Solar Power Plant at Kalwakurthy, Dist. Mehabubnagar, Telangana | 16.89% |
| VCS Project for Solar Power Plant at Salakpur, Telangana                        | 16.56% |
| VCS Project for Solar Power Plant at Alladurg, Telangana                        | 17.07% |

#### Consideration about EF<sub>grid,OM,y</sub>:

The simple OM emission factor have been calculated using the Simple OM method as the low-cost/must run resources constitute less than 50% (for year 2009-10, 2010-11, 2011-12, 2012-13 and 2013-14). The ex-ante vintage data has been used for the OM calculation of the project. The latest version of CEA database available was version 10 at the time of submission of VCS-PD for validation. EF<sub>grid,OM,y</sub> is calculated as the most recent three years full generation weighted average of the emission factors, consequently the Operating Margin Emission Factor is determined to be 0.9862 tCO<sub>2</sub>/MWh for NEWNE grid and 0.9887 tCO<sub>2</sub>/MWh for Southern grid. The EF<sub>grid,OM,y</sub> is calculated and fixed ex-ante for the entire crediting period of 10 years.

Consideration about  $EF_{grid, BM, y}$ :

BM emission factor is calculated ex- ante based on the most recent information available at the time of submission of PP i.e. year 2013-2014 and is fixed for the entire crediting period. Consequently the Build Margin emission factor is determined to be 0.9495 tCO<sub>2</sub>/MWh for NEWNE grid and 0.9609 tCO<sub>2</sub>/MWh for Southern grid.

The baseline emission factor is calculated as the average of the operating margin emission factor and the build margin emission factor where the weights  $W_{OM}$  and  $W_{BM}$ , by default, are 75%  $W_{OM}$  and 25%  $W_{BM}$ . The combined margin emission factor for NEWNE grid of India has been calculated to be 0.9770 tCO<sub>2</sub>/MWh which will be fixed ex-ante for the entire renewable crediting period of 10 years.

The combined margin emission factor for Southern grid of India has been calculated to be 0.9817 tCO<sub>2</sub>/MWh which will be fixed ex-ante for the entire renewable crediting period of 10 years.

The PP has used official data for OM and BM published by Central Electricity Authority (CEA) CO<sub>2</sub> Baseline database version 10 which is an official source of Ministry of Power, Government of India. The validation team accepted the same as this is the latest version of the database available to the project participant at the time of submission of VCS-PD/01/ for validation.

The ex-ante baseline emissions, which is a product of the net electricity supplied to the grid and the grid emission factor, has been calculated as follows:

The baseline emissions have been calculated as the product of the net electricity exported to the respective grids by the project activity and combined margin emission factor of the grid.

$$BE_y = EG_{PJ, y} \times EF_{grid, y}$$

Where,

$BE_y$  = Baseline emissions in year y (t CO<sub>2</sub>).

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

$EF_{grid, y}$  = Combined margin CO<sub>2</sub> emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO<sub>2</sub>/MWh)

Quantification of Project emissions

The project activity involves the generation of electricity using Solar energy. Hence there are no project emissions associated with this project activity.

Quantification of Leakage

Leakage has not been considered for the project activity. The proposed project activity uses new energy generating equipment which has been verified from the purchase orders and it is not transferred from another project activity. As per AMS I.D version 18.0 and ACM0002 version

16.0, there is no leakage for solar energy projects. Thus, not considering leakage for the project activity is appropriate.

#### Summary of GHG emission reductions or removals:

Based on the values of baseline emissions and project emissions ex-ante annual emission reductions over the 10 year period have been calculated as 77,678 tCO<sub>2</sub>/year for five project instances included under the grouped project activity. The detailed calculations are provided in emission reduction excel spreadsheet. The emission reductions have been calculated from start date of grouped project. The same have been checked and found to be correct. As the date of commissioning is different for various project instances accordingly emission reductions for first year have been calculated considering number of days the plant was operational in first year. However from second year onwards, complete year is considered for emission reduction calculations.

$$\begin{aligned} \text{ERy} &= \text{BEy} \\ &= 77,678 \text{ tCO}_2\text{e. (average annual emission reductions over a 10 year period)} \end{aligned}$$

The Estimated emission reduction for each project instances is also provided by the PP. The assessment team has checked the calculation and found correct. The estimated Emission reduction for each project instances are provided below:

The Ex-ante calculation for all project instances for crediting period of 10 years is given below:

The ex-ante emission reduction for individual project activity instances are as follows:

#### **Instance – 1: Bhadla:**

| Years        | Estimated baseline emissions or removals (tCO <sub>2</sub> e) | Estimated project emissions or removals (tCO <sub>2</sub> e) | Estimated leakage emissions (tCO <sub>2</sub> e) | Estimated net GHG emission reductions or removals (tCO <sub>2</sub> e) |
|--------------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------|
| Year 1       | 29,271                                                        | 0                                                            | 0                                                | 29,271                                                                 |
| Year 2       | 29,271                                                        | 0                                                            | 0                                                | 29,271                                                                 |
| Year 3       | 29,271                                                        | 0                                                            | 0                                                | 29,271                                                                 |
| Year 4       | 29,271                                                        | 0                                                            | 0                                                | 29,271                                                                 |
| Year 5       | 29,271                                                        | 0                                                            | 0                                                | 29,271                                                                 |
| Year 6       | 29,271                                                        | 0                                                            | 0                                                | 29,271                                                                 |
| Year 7       | 29,271                                                        | 0                                                            | 0                                                | 29,271                                                                 |
| Year 8       | 29,271                                                        | 0                                                            | 0                                                | 29,271                                                                 |
| Year 9       | 29,271                                                        | 0                                                            | 0                                                | 29,271                                                                 |
| Year 10      | 29,271                                                        | 0                                                            | 0                                                | 29,271                                                                 |
| <b>Total</b> | <b>292,710</b>                                                | <b>0</b>                                                     | <b>0</b>                                         | <b>292,710</b>                                                         |

## Instance 2: Achampet:

| Years        | Estimated baseline emissions or removals (tCO <sub>2</sub> e) | Estimated project emissions or removals (tCO <sub>2</sub> e) | Estimated leakage emissions (tCO <sub>2</sub> e) | Estimated net GHG emission reductions or removals (tCO <sub>2</sub> e) |
|--------------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------|
| Year 1       | 4,873                                                         | 0                                                            | 0                                                | 4,873                                                                  |
| Year 2       | 7,172                                                         | 0                                                            | 0                                                | 7,172                                                                  |
| Year 3       | 7,172                                                         | 0                                                            | 0                                                | 7,172                                                                  |
| Year 4       | 7,172                                                         | 0                                                            | 0                                                | 7,172                                                                  |
| Year 5       | 7,172                                                         | 0                                                            | 0                                                | 7,172                                                                  |
| Year 6       | 7,172                                                         | 0                                                            | 0                                                | 7,172                                                                  |
| Year 7       | 7,172                                                         | 0                                                            | 0                                                | 7,172                                                                  |
| Year 8       | 7,172                                                         | 0                                                            | 0                                                | 7,172                                                                  |
| Year 9       | 7,172                                                         | 0                                                            | 0                                                | 7,172                                                                  |
| Year 10      | 7,172                                                         | 0                                                            | 0                                                | 7,172                                                                  |
| <b>Total</b> | <b>69,421</b>                                                 | <b>0</b>                                                     | <b>0</b>                                         | <b>69,421</b>                                                          |

## Instance – 3: Kalwakurthy:

| Years  | Estimated baseline emissions or removals (tCO <sub>2</sub> e) | Estimated project emissions or removals (tCO <sub>2</sub> e) | Estimated leakage emissions (tCO <sub>2</sub> e) | Estimated net GHG emission reductions or removals (tCO <sub>2</sub> e) |
|--------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------|
| Year 1 | 10,147                                                        | 0                                                            | 0                                                | 10,147                                                                 |
| Year 2 | 14,524                                                        | 0                                                            | 0                                                | 14,524                                                                 |
| Year 3 | 14,524                                                        | 0                                                            | 0                                                | 14,524                                                                 |
| Year 4 | 14,524                                                        | 0                                                            | 0                                                | 14,524                                                                 |
| Year 5 | 14,524                                                        | 0                                                            | 0                                                | 14,524                                                                 |
| Year 6 | 14,524                                                        | 0                                                            | 0                                                | 14,524                                                                 |
| Year 7 | 14,524                                                        | 0                                                            | 0                                                | 14,524                                                                 |
| Year 8 | 14,524                                                        | 0                                                            | 0                                                | 14,524                                                                 |

| Years        | Estimated baseline emissions or removals (tCO <sub>2</sub> e) | Estimated project emissions or removals (tCO <sub>2</sub> e) | Estimated leakage emissions (tCO <sub>2</sub> e) | Estimated net GHG emission reductions or removals (tCO <sub>2</sub> e) |
|--------------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------|
| Year 9       | 14,524                                                        | 0                                                            | 0                                                | 14,524                                                                 |
| Year 10      | 14,524                                                        | 0                                                            | 0                                                | 14,524                                                                 |
| <b>Total</b> | <b>140,863</b>                                                | <b>0</b>                                                     | <b>0</b>                                         | <b>140,863</b>                                                         |

## Instance – 4: Salakpur:

| Years        | Estimated baseline emissions or removals (tCO <sub>2</sub> e) | Estimated project emissions or removals (tCO <sub>2</sub> e) | Estimated leakage emissions (tCO <sub>2</sub> e) | Estimated net GHG emission reductions or removals (tCO <sub>2</sub> e) |
|--------------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------|
| Year 1       | 6,867                                                         | 0                                                            | 0                                                | 6,867                                                                  |
| Year 2       | 14,241                                                        | 0                                                            | 0                                                | 14,241                                                                 |
| Year 3       | 14,241                                                        | 0                                                            | 0                                                | 14,241                                                                 |
| Year 4       | 14,241                                                        | 0                                                            | 0                                                | 14,241                                                                 |
| Year 5       | 14,241                                                        | 0                                                            | 0                                                | 14,241                                                                 |
| Year 6       | 14,241                                                        | 0                                                            | 0                                                | 14,241                                                                 |
| Year 7       | 14,241                                                        | 0                                                            | 0                                                | 14,241                                                                 |
| Year 8       | 14,241                                                        | 0                                                            | 0                                                | 14,241                                                                 |
| Year 9       | 14,241                                                        | 0                                                            | 0                                                | 14,241                                                                 |
| Year 10      | 14,241                                                        | 0                                                            | 0                                                | 14,241                                                                 |
| <b>Total</b> | <b>135,036</b>                                                | <b>0</b>                                                     | <b>0</b>                                         | <b>135,036</b>                                                         |

## Instance – 5: Alladurg:

| Years  | Estimated baseline emissions or removals (tCO <sub>2</sub> e) | Estimated project emissions or removals (tCO <sub>2</sub> e) | Estimated leakage emissions (tCO <sub>2</sub> e) | Estimated net GHG emission reductions or removals (tCO <sub>2</sub> e) |
|--------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------|
| Year 1 | 6,636                                                         | 0                                                            | 0                                                | 6,636                                                                  |

| Years        | Estimated baseline emissions or removals (tCO <sub>2</sub> e) | Estimated project emissions or removals (tCO <sub>2</sub> e) | Estimated leakage emissions (tCO <sub>2</sub> e) | Estimated net GHG emission reductions or removals (tCO <sub>2</sub> e) |
|--------------|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------|
| Year 2       | 14,679                                                        | 0                                                            | 0                                                | 14,679                                                                 |
| Year 3       | 14,679                                                        | 0                                                            | 0                                                | 14,679                                                                 |
| Year 4       | 14,679                                                        | 0                                                            | 0                                                | 14,679                                                                 |
| Year 5       | 14,679                                                        | 0                                                            | 0                                                | 14,679                                                                 |
| Year 6       | 14,679                                                        | 0                                                            | 0                                                | 14,679                                                                 |
| Year 7       | 14,679                                                        | 0                                                            | 0                                                | 14,679                                                                 |
| Year 8       | 14,679                                                        | 0                                                            | 0                                                | 14,679                                                                 |
| Year 9       | 14,679                                                        | 0                                                            | 0                                                | 14,679                                                                 |
| Year 10      | 14,679                                                        | 0                                                            | 0                                                | 14,679                                                                 |
| <b>Total</b> | <b>138,747</b>                                                | <b>0</b>                                                     | <b>0</b>                                         | <b>138,747</b>                                                         |

Based on the above assessment, the validation team hereby confirms for the grouped project and initial five project instances that:

- (a) All assumptions and data used by the project participants are listed in the VCS-PD/01/, including their references and sources;
- (b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the VCS-PD/01/;
- (c) All values used in the VCS-PD/01/ are considered reasonable in the context of the proposed project activity;
- (d) The baseline methodology has been applied correctly to calculate baseline emissions and emission reductions;
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the VCS-PD/01/

Validation team confirms that the estimates provided in the revised VCS-PD/01/ version 02 is reasonable and the project participant has correctly applied the methodology; the calculations are complete and transparent and the data accuracy has been verified.

### Uncertainties associated with the calculation of emissions

No uncertainties associated with the calculation of emissions are found.

### 3.2.7 Methodology Deviations

No methodology deviations applied to this GHG project.

### 3.2.8 Monitoring Plan

The project activity uses the simplified baseline and monitoring methodology AMS I.D., version 18 and ACM0002 version 16.0/11/. The applicability conditions of the methodology have been discussed above.

The monitoring plan is in accordance with the monitoring methodology. The monitoring plan will give opportunity for real measurement of achieved emission reductions.

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

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

#### **a) Data and parameters available at validation:**

Baseline emission factors for NEWNE regional grids of India are established *ex-ante* based on the approved methodology AMS I.D, version 18, applying combined approach consisting of 75% operating margin and 25% build margin.

|   | Data/parameter                      | Unit                  | Value applied                                             | Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---|-------------------------------------|-----------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | EF <sub>grid,OM,y</sub>             | tCO <sub>2</sub> /MWh | 0.9862<br>(NEWNE grid).<br><br>0.9887-<br>(Southern grid) | Project participant has used the official published data on operating and build margin emission factors. The version of the data used is latest version as available on the date of project listing with VCS registry (viz. start of validation). This data is published by Central Electricity Authority, CEA (version 10.0) who is the sole authority for the publication of such data in India. CEA has published a database of carbon dioxide emission factors for the power sector in India based on detailed authenticated information obtained from CEA on all operating power stations in the country. |
| 2 | EF <sub>grid,BM,y</sub>             | tCO <sub>2</sub> /MWh | 0.9495<br>(NEWNE grid).<br><br>0.9609<br>(Southern grid)  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 3 | EF <sub>CO<sub>2</sub>,grid,y</sub> | tCO <sub>2</sub> /MWh | 0.9770<br>(NEWNE grid).<br><br>0.9817<br>(Southern grid)  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

|   | Data/parameter                                                              | Unit     | Value applied | Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---|-----------------------------------------------------------------------------|----------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                                                                             |          |               | <p>Project participant has applied weight factors for the OM and BM (75% &amp; 25% respectively) as specified in the tool to arrive at the emission factor for the combined margin.</p> <p>Validation team has checked the emission factor calculations from CEA database version 10.0 and the values of <math>EF_{CO_2, grid, y}</math>, <math>EF_{grid, OM, y}</math> and <math>EF_{grid, BM, y}</math> are found to be correct. The validation team agrees to this emission factor since it is based on the official background data published by CEA.</p> |
| 4 | The percentage share of total installed capacity of the specific technology | %        | 1.44          | The percentage share of total installed capacity of the specific technology in the total installed grid connected power generation capacity in the host country. The host country for this project activity is India. The data is sourced from Central Electricity Authority, Ministry of Power, Government of India. Since the data is considered from a central Government Authority, thus the value is considered to be correct.                                                                                                                           |
| 5 | $W_{OM}$                                                                    | Fraction | 0.75          | Weight of operating margin emission factor for calculating the emission factor. The value is sourced from Tool to calculate the emission factor for an electricity system (version 05.0). Since the data is sourced from UNFCCC published data, hence the data assumed is considered to be correct.                                                                                                                                                                                                                                                           |
| 6 | $W_{BM}$                                                                    | Fraction | 0.25          | Weight of build margin emission factor for calculating the emission factor. The value is sourced from Tool to calculate the emission factor for an electricity system (version 05.0). Since the data is sourced from UNFCCC published data, hence the data assumed is considered to be correct.                                                                                                                                                                                                                                                               |

Validation team confirms that the database is an official publication of Ministry of Power, Government of India. The calculation and assumptions were verified by the validation team and found to be correct and appropriate

## b) Data and parameters monitored

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

### Monitoring parameters for each Project Instances under the grouped project:

|   | Parameter                     | Description/Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | EG <sub>PJ, facility, y</sub> | <p>Net electricity supplied to the grid by the project activity instance during the year y. The measurement of the electricity generated will be jointly recorded by respective state utility and project participants on the basis of the measured values of “export” and “import” of the meter installed at the delivery point, where monthly joint meter reading is taken. This value is treated as the accurate and final measurement of the energy supplied to Grid by the power producer. On the basis of these meters readings, invoice will be raised to the respective DISCOM Authority by the Project proponent. The net electricity supplied by the project activity is taken directly from the JMR issued by respective DISCOM on monthly basis and will be directly used to estimate the emission reduction. The net electricity supplied to grid will also be cross checked with the invoice raised by PP to the respective DISCOM Authority.</p> <p>The main and check meter at the substation is of 0.2S accuracy class and is maintained by the state electricity Board's respective Authority. Calibration of the meter is done at least once in 5 years.</p> <p>Presently there are five project instances included under the proposed project activity. The same monitoring plan is applicable to all initial project instances included under the grouped project. The Monitoring plan and Monitoring parameters will be same for all project instances.</p> |

### Ex-post monitoring

The ex-post monitoring requires net electricity supplied to the grid by the project activity instance during the year y to be monitored. There is a main meter and check meter at sub-station, where the measurement will be done, reading of main meter will be used and in case of failure of main meter, reading from check meter shall be used for determination of net electricity exported to grid.

The meter readings of meters installed in sub-station (for four project instances in Telangana) under each project instances will jointly take on monthly basis. The meters are installed at plant premise for Bhadla project. The same was verified during site visit. The meter reading is taken by state utility at substation and JMR with net electricity supplied is issued to PP.

On the basis of JMR, the invoice will be raised to the respective grids by the PP. PP has provided the calculation of ER for each project instances under the grouped project in the PD. The assessment team has checked the PD and found these information for all project instances are correct and accepted.

The equations were checked by the validation team and found to be correct. Thus net electricity exported by all Solar Power projects instances is then calculated by subtracting electricity imported by project activity from electricity exported by project activity as explained in VCS-PD and same is found to be correct. Continuous monitoring and monthly recording will be carried out at meters at sub-station as per the requirement of the applied methodology AMS I.D version 18.0 and ACM0002 version 16.0. Validation team had confirmed the same during site visit. As per the applied methodology AMS I.D version 18.0 and ACM0002, quantity of net electricity supplied to the grid in year is required to be monitored, which is then directly used for emission reduction calculation. Furthermore, as cross checked during site visit,  $EG_{PJ, facility, y}$  is the only parameter used for the emission reduction calculation and it is directly sourced from the JMR issued by the respective state electricity board. The same approach is in consistence with the monitoring requirements of applied methodology AMS I.D version 18.0 and ACM0002 version 16.0.

### **Applicability and eligibility of monitoring equipment and procedures**

The project activity involves the generation of electricity by Solar Power project which are located in the different states of India. All the plants under the grouped project are Solar Power based Greenfield project. The same was verified during site visit and found to be correct.

Electricity export to the grid and import from the grid is metered by the energy meters with an accuracy class of 0.2s installed at sub-station under each project instances located in Telangana. The energy meters with an accuracy class of 0.2s installed at plant premises for Bhadla Project. The assessment team therefore is of the opinion that the project participant through the O&M agency is capable of implementing the monitoring plan in the context of the project activity.

All the meters for each project instances are under the custody of respective state electricity Authority and state utility will be responsible for the calibration of the energy meters as per the industry standards. PP has proposed calibration of meter once in five year for meters for all project instances. Further, the national standard available to the project participant i.e. CEA notification allows the calibration to be done once in a five year for the interface meters ([http://www.cea.nic.in/reports/regulation/meter\\_reg.pdf](http://www.cea.nic.in/reports/regulation/meter_reg.pdf)). Thus applying this approach, PP will conduct calibration once in a five year which is acceptable to the assessment team. All data will be archived electronically and will be kept for a minimum of 2 years after the end of crediting period or last issuance whichever is later.

The responsibilities and authorities of project management, data handling and recording, measurement methods and QA/QC procedure have been systematically established and formalized and the same was verified during the site visit. The assessment team has visited all the five project site presently included under the grouped project and found all the information correct and consistent as available in VCS-PD.

The representatives of the O&M team were interviewed at all five sites to verify the correctness of the procedure mentioned in the VCS-PD. The validation team confirms that the description in the VCS-PD correctly represents the metering system available at the project activity sites and that the defined monitoring plan can be implemented in the context of the project activity. The operational and management structure along with detailed responsibilities are mentioned in VCS-PD.

URS confirms that the monitoring plan mentioned in the latest VCS-PD is in accordance with the requirements mentioned in the monitoring methodology and the local regulatory requirements of the state utility. The monitoring arrangements described in the monitoring plan are feasible within the project design. URS is of the opinion that the monitoring plan will give opportunity for real measurement of achieved emissions reductions.

The validation team therefore is of the opinion that the project participant is capable of implementing the monitoring plan in the context of the project activity.

## 3.3 Non-Permanence Risk Analysis

The complete and transparent monitoring plan of the project activity has been described in section 4 of the VCS PD/01/. The monitoring plan conforms to the requirement of the applied methodology AMS I.D. version 18 and ACM0002 version 16.0. The same has been validated by the assessment team and it is found that there is no non-permanence risk found at this stage of the project activity.

## 3.4 Environmental Impact

The project activity is expected to have positive impacts and no significant adverse environmental impacts are foreseen. Since, the project activity is an electricity generation from renewable source (i.e. Solar energy) therefore no negative impact are envisaged. There is no mandatory legal requirement for carrying out an environmental impact assessment. The Ministry of Environment and Forests (MoEF), Government of India (GoI) notification dated September 14, 2006 /10/, its amendment notification dated 1/12/2009 and 24/12/2013 /10/ regarding the requirement of Environment Impact Assessment (EIA) studies states that any project developer in India needs to file an application to the Ministry of Environment and Forests (including a public hearing and an EIA) in case the proposed industry or project is listed in a predefined list. The Solar power projects are not included in this list and thus an EIA study is not required.

Validation team has verified all the statutory clearances which include commissioning certificates, State Pollution Board consent to operate for the Solar Power Projects. The validation team concludes that all the clearances obtained are in accordance with the procedures required by the host party and no significant environmental impacts are expected from the project activity.

## 3.5 Comments by stakeholders

Prior to the publication of the VCS-PD version 01 on the VCS registry, the project proponent had invited local stakeholders through newspaper advertisement published in local newspaper for each project instances.

The date of Local stakeholders meeting for each project instances is given below:

| Project               | Location                      | Date of notice in Newspaper | Date of Stakeholder meeting |
|-----------------------|-------------------------------|-----------------------------|-----------------------------|
| VCS Project for Solar | Plot no. 5 & 11, Bhadla Solar | 28/08/2015                  | 12/09/2015                  |

|                                                                                 |                                                                             |            |            |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------|------------|
| Power Plant at Bhadla, Rajasthan                                                | Park, Village – Bhadla, Tehsil – Bap, District – Jodhpur                    |            |            |
| VCS Project for Solar Power Plant at Achampet, Telangana                        | Achampet Village and Mandal, Dist. Mehaboobnagar, Telangana, India          | 26/08/2015 | 14/09/2015 |
| VCS Project for Solar Power Plant at Kalwakurthy, Dist. Mehabubnagar, Telangana | Ternikal Village, Kalwakurthy Mandal, Dist. Mehaboobnagar, Telangana, India | 26/08/2015 | 14/09/2015 |
| VCS Project for Solar Power Plant at Salakpur, Telangana                        | Salakpur (Vi), Maddur (Mdl), Warangal (Dist.), Telangana, India             | 26/08/2015 | 15/09/2015 |
| VCS Project for Solar Power Plant at Alladurg, Telangana                        | Bhiaramdhibba (Vi), Alladurg (C), Sangareddy, Medak (Dist.), Telangana      | 26/08/2015 | 16/09/2015 |

The PP has identified the local villagers, employees, contractors and consultants as the stakeholders. Based on the observations of the validation team during the site visit and as per the definition of stakeholder, the identification of stakeholders for consultation was found to be appropriate. Thus, the validation team is of the opinion that the relevant stakeholders have been consulted. Stakeholder meeting was conducted for each project instances as mentioned above in the table.

The copy of newspaper advertisement /04/, attendance sheet /05/ and minutes of meeting/06/ were provided to validation team for the stakeholder meetings for all project instances. The project has given employment to local people during it implementation and the local villager viewed the project as contributing to local social-economy. There were no negative comments from the stakeholders for both the project activities. Validation team has assessed the news paper advertisement, minutes of meeting of the stakeholders meetings and found correct and it is found that no adverse comment was received for the project activity. Validation team hereby confirms that the process of local stakeholder consultation is observed to be adequate and credible.

## 4 VALIDATION CONCLUSION

The project proponent for this project is Essel Mining & Industries Limited from India.

URS verification private limited (URS) has performed validation of the project activity “VCS Grouped Project for Renewable Power Generation by Essel Mining & Industries Limited” in India which includes initially five project instances with regard to the relevant requirements for VCS. There are five project instances initially included under the grouped project are VCS Project for Solar Power Plant at Bhadla, Rajasthan with capacity of 20MW; VCS Project for Solar Power Plant at Achampet, Telangana with capacity of 5MW; VCS Project for Solar Power Plant at Kalwakurthy, Dist. Mehabubnagar, Telangana with capacity of 10MW; VCS Project for Solar Power Plant at Salakpur, Telangana with capacity 10MW and VCS Project for Solar Power Plant at Alladurg, Telangana having capacity of 10MW.

The review of the VCS-PD and the subsequent follow-up interviews have provided URS with sufficient evidence to determine the fulfillment of the stated criteria.

The project correctly applies the approved baseline and monitoring methodology AMS I.D: “Grid connected renewable electricity generation” version 18 dated 28/11/2014 for four project instances in Telangana with capacity upto 15MW and Baseline and monitoring methodology “ACM0002: Grid-connected electricity generation from renewable sources” version 16.0 dated 28/11/2014 for project instance in Bhadla, Rajasthan with capacity more than 15MW.

By generating renewable electricity which will displace fossil fuel based grid electricity, the project results in the reductions of CO<sub>2</sub> emissions that are real, measurable and give long term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would have occurred in the absence of the project activity.

The total emission reductions from the “VCS Grouped Project for Renewable Power Generation by Essel Mining & Industries Limited” are estimated to be on an average 77,678 tCO<sub>2e</sub> per year over the selected 10 years crediting period which is inclusive of five project instances initially considered under the grouped project. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

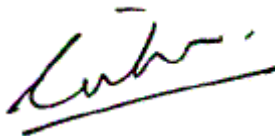
The monitoring plan provides for the monitoring of the project's emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is URS's opinion that the project participants are able to implement the monitoring plan.

In conclusion, URS is of the opinion that the project activity “VCS Grouped Project for Renewable Power Generation by Essel Mining & Industries Limited” in India, as described in the VCS-PD, version 03 of 26/02/2016, meets all relevant VCSA requirements for the VCS grouped project as per VCS standard v 3.5 and VCS rules and all relevant criteria of India and correctly applies the baseline and monitoring methodology AMS I.D”, “Grid connected renewable electricity

generation", Version 18 of 28/11/2014 and Baseline and monitoring methodology "ACM0002: Grid-connected electricity generation from renewable sources" version 16.0 dated 28/11/2014.

URS thus requests registration of the project as a VCS grouped project activity.

Date: 05 March 2016



Mukesh Singhal

CEO

URS Verification Private Limited

## Appendix 1

| Summary of Findings | CAR | CL | FAR |
|---------------------|-----|----|-----|
|                     | 07  | 01 | 00  |

|                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                          |            |                    |                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------|------------|--------------------|-------------------------------------------------------|
| <u>Date:</u>                                                                                                                                                                                                                                                                                                                                                                                                    | 20/12/2015 | <u>Raised by:</u>        |            | Amit Ranjan Mandal |                                                       |
| <u>Type of Finding</u>                                                                                                                                                                                                                                                                                                                                                                                          | CAR        | <u>S. No. of Finding</u> | 1          | REFERENCE          | VCS Project Description, version 01, dated 26/11/2015 |
| <b>Details of the <u>Finding</u>:</b>                                                                                                                                                                                                                                                                                                                                                                           |            |                          | 20/12/2015 |                    |                                                       |
| In section 1.1 of the VCS PD, it is mentioned that EMIL also acts as coordinating and managing entity for the proposed grouped project activity. PP is requested to provide supporting evidence for the same.<br><br>The link for the reference of the methodologies used is not provided in section 1.2 of the VCS PD. PP is also requested to provide the links for the Tools referred in the generic VCS PD. |            |                          |            |                    |                                                       |
| <b>Project Participant Response</b>                                                                                                                                                                                                                                                                                                                                                                             |            |                          | 18/02/2016 |                    |                                                       |
| EMIL is the project proponent for all the projects to be included in the proposed grouped project, also it is acting as coordinating and managing entity for the grouped project, hence no separate supporting evidence is required.<br><br>Relevant details are updated in section 1.1 and 1.2 of the VCS PD accordingly.                                                                                      |            |                          |            |                    |                                                       |
| <b>Documents/ information provided by the Project Participant:</b>                                                                                                                                                                                                                                                                                                                                              |            |                          |            |                    |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                          |            |                    |                                                       |
| <b>Reasoning for <del>acceptance</del> or non-acceptance:</b>                                                                                                                                                                                                                                                                                                                                                   |            |                          | 18/02/2016 |                    |                                                       |

EMIL is the project proponent for all project instances included under the grouped project activity. The assessment team has checked the commissioning certificate for all project instances and found correct. Thus, as confirmed from the commissioning certificate, power purchase agreement and supply contract, Essel Mining & Industries Limited has right of use and they will also act as co-ordinating and managing entity for all project activity instances as they are project proponent. Hence accepted and closed out.

The link for the reference of the methodologies used is now provided in section 1.2 of the VCS PD. The assessment team has checked the revised PD and found it correct and in line with the requirements of VCS-PD template, hence accepted and closed out.

The CAR is open due to ITR comments:

- 1) It is not clearly mentioned in VCS PD whether only solar PV projects will be added in future or renewable energy projects will be added.
- 2) Location of project and estimation of annual average and total GHG emissions are not mentioned in section 1.1 which is requirements of VCS template
- 3) In section 1.2 classification of large and small projects is not clear
- 4) Crediting period is not defined in section 1.6
- 5) Classification of projects is not correct in section 1.7
- 6) Capacity of project at Kalwakurthy is not correct in section 1.8
- 7) All documents for right of use are not mentioned in section 1.12.1
- 8) Details in section 1.12.2, 1.12.3, 1.12.4 and 1.12.5 are not mentioned specific to initial five project instances.
- 9) Eligibility criteria are not clear. Some eligibility criteria are mentioned as not applicable. It is not clear when some eligibility criteria are not applicable for grouped project then why same are mentioned.
- 10) Eligibility criteria does not include criteria with respect to baseline.
- 11) Details are not mentioned in Further Information in section 1.13.
- 12) Many tools are not applicable for this grouped project such as project and leakage emissions from biomass so it is not clear why these are mentioned.
- 13) Details on applicability of methodology is not mentioned specifically for five project instances.
- 14) Details on project boundary are not mentioned specifically for five project instances in section 2.3.
- 15) Details on baseline are not mentioned specifically for five project instances in section 2.4.
- 16) As per requirement of VCS standard, geographical area is not defined with geodetic coordinate and details of single baseline and additionality for entire geographical area are not clearly mentioned.
- 17) As per requirement of VCS standard, details on additionality are not clearly mentioned for initial five instances.

PP is requested to clarify the above.

CAR 01 is open.

|                                     |            |
|-------------------------------------|------------|
| <b>Project Participant Response</b> | 26/02/2016 |
|-------------------------------------|------------|

- 1) The first paragraph in section 1.1 clearly indicates that the project consists of solar PV technology. This is again mentioned in para 4 as – “...*The renewable energy generation plants under the grouped project activity would generate Solar PV based electricity* . “
- 2) Project locations and estimated annual average emission reductions are updated in section 1.1.
- 3) Classification of large and small scale project activity instances is defined in section 1.2. These are as per CDM terminology.
- 4) Crediting period for the grouped project activity are defined in the section 1.6
- 5) Classification of projects is corrected in section 1.7
- 6) Capacity of project activity instance at Kalwakurthy has been corrected in the VCS-PD
- 7) Documents related to right of use are included in the section 1.12.1 of the VCS-PD
- 8) Sections 1.12.2, 1.12.3, 1.12.4 and 1.12.5 are updated in the VCS-PD
- 9) Eligibility criteria are revised
- 10) Criteria with respect to baseline has been added
- 11) The section has been updated
- 12) It has been transparently explained in the VCS PD that through these tools are mentioned in the methodology, how they are not applicable for the project activity under consideration. Project and leakage emissions from biomass has been removed.
- 13) Applicability of methodology has been explained specifically for all five project activity instances..
- 14) Section 2.3 has been updated and details on project boundary has been updated.
- 15) Section 2.4 has been updated and details on baseline are updated.
- 16) The geographical boundary is delineated in the form of extreme geographic coordinates in section 1.9. Single baseline and additionality for entire geographical area are also mentioned in respective sections.
- 17) Details of additionality is also updated for initial project activity instances.

**Documents/ information provided by the Project Participant:**

**Reasoning for acceptance or non-acceptance:**

29/02/2016

- 1) PP has revised the PD and the required paragraphs are revised as per the requirement. The assessment team has reviewed the VCS-PD and it is clearly mentioned that “...*The renewable energy generation plants under the grouped project activity would generate Solar PV based electricity*”, hence accepted.
- 2) PP has revised the PD and Project locations and estimated annual average emission reductions are mentioned which is found correct and accepted.
- 3) Classification of large and small scale project activity instances is defined in section 1.2 of the revised PD by the PP. These are as per CDM terminology. The assessment team has checked the revised document and found it correct, hence accepted.

- 4) Crediting period for the grouped project activity are defined in the section 1.6. The assessment team has checked and reviewed the revised PD and found that the crediting period is transparently mentioned which is found correct, hence accepted.
- 5) Classification of projects is corrected in section 1.7. The assessment team has reviewed the PD and found it correct, hence accepted.
- 6) Capacity of project activity instance at Kalwakurthy has been corrected in the VCS-PD. It is 10 MW project. The assessment team has checked the same and found it correct, hence accepted.
- 7) Documents related to right of use i.e. supply contract, power purchase agreements are included in the section 1.12.1 of the VCS-PD. The assessment team has checked the revised VCS-PD and it is observed that the reference of documents are correctly mentioned, hence accepted.
- 8) Sections 1.12.2, 1.12.3, 1.12.4 and 1.12.5 are updated in the VCS-PD as per the requirements and details of all initial five project activity instances are mentioned. The assessment team has checked and reviewed the VCS-PD and found it correct and hence accepted.
- 9) Eligibility criteria are revised in the VCS-PD. The assessment team has checked and reviewed the VCS-PD and found that the eligibility criteria is correctly mentioned in the PD. Eligibility criteria are as per requirements in VCS standard v3.5 and hence accepted.
- 10) Criteria with respect to baseline has been added by the PP. The assessment team has checked the PD and found it correct, hence accepted.
- 11) The section 1.13 of the VCS-PD has been updated by the PP and contribution of project to sustainable development is mentioned. The assessment team has checked the VCS-PD and found it correct, hence accepted and closed out.
- 12) PP has revised the Tools used for this project activity. Project and leakage emissions from biomass has been removed. PP has also transparently mentioned that methodology refer to these tools and many are not applicable. Tool to calculate emission factor for an electricity system is applicable which is clearly mentioned in VCS-PD. The assessment team has checked the PD and found it correct and in line with the requirements, hence accepted and closed out.
- 13) Applicability of methodology has been explained for all five project activity instances in the revised VCS-PD. The assessment team has checked the applicability criteria and found that all project instances are mentioned for the applicability criteria which is found correct, hence accepted.
- 14) Details on project boundary is now mentioned for five project instances in section 2.3. The assessment team has checked the VCS-PD and found it correct.
- 15) Details on baseline is now mentioned for five project instances in section 2.4 of the PD. The assessment team has checked the revised VCS-PD and found it correct and hence accepted and closed.
- 16) PP has mentioned the geographical boundary in the form of extreme geographic coordinates in section 1.9 for India and same has been checked and found to be correct. Single baseline is mentioned section 2.4 for entire geographical area. The same has been checked and found to be correct. Single additionality is mentioned for entire geographical area and same has been checked and found to be correct.
- 17) Details of additionality is also updated for initial project activity instances in section 2.5. Four project activity instances in Telangana are solar PV project with capacity less than 15 MW and they are in positive list of projects that are automatically additional as per Demonstration of additionality for small scale project activities and same has been checked and found to be correct. Project instance at Bhadla is also automatically additional as per para 30 of ACM 0002 ver 16 as share of total installed capacity of the solar power generation in the total installed grid connected power generation capacity in India is 1.44% which is less than 2%.

Thus CAR 01 is closed.

**Close out by Lead Assessor**

29/02/2016

|                                                                                                                                                                                                                               |            |                          |            |                    |                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------|------------|--------------------|-------------------------------------------------------|
| <u>Date:</u>                                                                                                                                                                                                                  | 20/12/2015 | <u>Raised by:</u>        |            | Amit Ranjan Mandal |                                                       |
| <u>Type of Finding</u>                                                                                                                                                                                                        | CAR        | <u>S. No. of Finding</u> | 2          | REFERENCE          | VCS Project Description, version 01, dated 26/11/2015 |
| <b>Details of the <u>Finding</u>:</b>                                                                                                                                                                                         |            |                          | 20/12/2015 |                    |                                                       |
| PP has referred the Tool to calculate emission factor for an electricity system (Version 04.0) which is not the latest applicable version of the Tool available at UNFCCC webpage. PP is requested to clarify the same.       |            |                          |            |                    |                                                       |
| <b>Project Participant Response</b>                                                                                                                                                                                           |            |                          | 18/02/2016 |                    |                                                       |
| Version 04.0 was the latest version of the tool during preparation of VCS PD, however the VCS PD has now been updated with current latest version (version 05.0) of the said tool.                                            |            |                          |            |                    |                                                       |
| <b>Documents/ information provided by the Project Participant:</b>                                                                                                                                                            |            |                          |            |                    |                                                       |
|                                                                                                                                                                                                                               |            |                          |            |                    |                                                       |
| <b>Reasoning for <del>acceptance</del> or non-acceptance:</b>                                                                                                                                                                 |            |                          | 18/02/2016 |                    |                                                       |
| PP has now used the “Tool to calculate emission factor for an electricity system” version 5.0. The assessment team has reviewed the revised PD and found it transparently mentioned in the PD, hence accepted and closed out. |            |                          |            |                    |                                                       |
| This CAR is open due to ITR comments:                                                                                                                                                                                         |            |                          |            |                    |                                                       |
| 1. Steps to calculate emission factor are not mentioned in section 3.1                                                                                                                                                        |            |                          |            |                    |                                                       |
| PP is requested to clarify the same.                                                                                                                                                                                          |            |                          |            |                    |                                                       |
| CAR 02 is open.                                                                                                                                                                                                               |            |                          |            |                    |                                                       |
| <b>Project Participant Response</b>                                                                                                                                                                                           |            |                          | 26/02/2016 |                    |                                                       |
| 1) The emission factor is calculated in stepwise manner in the tool developed by CEA, accordingly the tool has been referred and choice of respective emission factor has been made in stepwise manner as explained in VCS PD |            |                          |            |                    |                                                       |

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| <b>Documents/ information provided by the Project Participant:</b>                                                                                                                                                                                                                                                                    |            |
|                                                                                                                                                                                                                                                                                                                                       |            |
| <b>Reasoning for acceptance <del>or non-acceptance</del>:</b>                                                                                                                                                                                                                                                                         | 29/02/2016 |
| <p>1. All steps to calculate emission factor is now transparently mentioned in the revised PD. The assessment team has checked the calculation of emission factor and found that the steps are followed as per the Tool to calculate emission factor for n electricity system. Hence accepted and close.</p> <p>CAR 02 is closed.</p> |            |
| <b>Close out by Lead Assessor</b>                                                                                                                                                                                                                                                                                                     | 29/02/2016 |

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|---------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------|------------|--------------------|-------------------------------------------------------|
| <u>Date:</u>                                                                                                                    | 20/12/2015 | <u>Raised by:</u>        |            | Amit Ranjan Mandal |                                                       |
| <u>Type of Finding</u>                                                                                                          | CL         | <u>S. No. of Finding</u> | 3          | REFERENCE          | VCS Project Description, version 01, dated 26/11/2015 |
| <b>Details of the <u>Finding</u>:</b>                                                                                           |            |                          | 20/12/2015 |                    |                                                       |
| PP is requested to provide the evidence for project location (latitude & longitude) for all projects under the grouped project. |            |                          |            |                    |                                                       |
| <b>Project Participant Response</b>                                                                                             |            |                          | 18/02/2016 |                    |                                                       |
| Declaration for the Geo-coordinates are provided for all the projects under the grouped project.                                |            |                          |            |                    |                                                       |
| <b>Documents/ information provided by the Project Participant:</b>                                                              |            |                          |            |                    |                                                       |
| - Declaration Letter.                                                                                                           |            |                          |            |                    |                                                       |
| <b>Reasoning for acceptance or non-acceptance:</b>                                                                              |            |                          | 18/02/2016 |                    |                                                       |

PP has provided the declaration letter dated 27/01/2016 for the location of all projects under the grouped project. The assessment team has checked and reviewed the declaration letter and PD and found consistent, hence accepted.

CL 03 is closed.

**Close out by Lead Assessor**

18/02/2016

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------|------------|-------------|-------------------------------------------------------|
| <u>Date:</u>                                                                                                                                                                                                                                          | 20/12/2015 | <u>Raised by:</u>        |            | Ashok Kumar |                                                       |
| <u>Type of Finding</u>                                                                                                                                                                                                                                | CAR        | <u>S. No. of Finding</u> | 4          | REFERENCE   | VCS Project Description, version 01, dated 26/11/2015 |
| <b>Details of the <u>Finding</u>:</b>                                                                                                                                                                                                                 |            |                          | 20/12/2015 |             |                                                       |
| PP has not provided the details in 1.11 of the VCS PD of all project instances under the grouped project as per VCS requirements. PP has also not provided the details in 1.12.1 as per the requirements.<br><br>PP is requested to clarify the same. |            |                          |            |             |                                                       |
| <b>Project Participant Response</b>                                                                                                                                                                                                                   |            |                          | 18/02/2016 |             |                                                       |
| Section 1.11 of project activity instances are updated in PD.<br><br>Details in 1.12.1 are provided in the PD for all project activity instances. Supporting documents for the same are already provided to the validator.                            |            |                          |            |             |                                                       |
| <b>Documents/ information provided by the Project Participant:</b>                                                                                                                                                                                    |            |                          |            |             |                                                       |
|                                                                                                                                                                                                                                                       |            |                          |            |             |                                                       |
| <b>Reasoning for acceptance or non-acceptance:</b>                                                                                                                                                                                                    |            |                          | 18/02/2016 |             |                                                       |

Section 1.11 of the PD are revised as per the requirements of VCS requirements for each project instances. The assessment team has reviewed the revised PD and found in line with the requirements, hence accepted.

PP has also provided the declaration for project not rejected by any other GHG program and project does not generate any other form of environmental credit. . PP has provided power purchase agreement and supply contract which show that Essel Mining & Industries Limited has right of use. . Hence, the issue is accepted and closed out by the assessment team.

CAR 04 is closed.

**Close out by Lead Assessor**

18/02/2016

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| <b><u>Date:</u></b>                                                                                                                                                                                                 | 20/12/2015 | <b><u>Raised by:</u></b>        |            | Ashok Kumar |                                                       |
| <b><u>Type of Finding</u></b>                                                                                                                                                                                       | CAR        | <b><u>S. No. of Finding</u></b> | 5          | REFERENCE   | VCS Project Description, version 01, dated 26/11/2015 |
| <b>Details of the <u>Finding</u>:</b>                                                                                                                                                                               |            |                                 | 20/12/2015 |             |                                                       |
| PP has provided the ER calculation sheet for each project component under the grouped project. However, the calculation details are not provided in VCS PD for each instances. PP is requested to clarify the same. |            |                                 |            |             |                                                       |
| <b>Project Participant Response</b>                                                                                                                                                                                 |            |                                 | 18/02/2016 |             |                                                       |
| Calculation details are updated in PD.                                                                                                                                                                              |            |                                 |            |             |                                                       |
| <b>Documents/ information provided by the Project Participant:</b>                                                                                                                                                  |            |                                 |            |             |                                                       |
|                                                                                                                                                                                                                     |            |                                 |            |             |                                                       |
| <b>Reasoning for <del>acceptance</del> or non-acceptance:</b>                                                                                                                                                       |            |                                 | 18/02/2016 |             |                                                       |

PP has now provided the calculation of ER in the revised PD for all project locations under the grouped project. The assessment team has reviewed the PD for all project instances and found it correct, hence accepted.

This CAR is open due to ITR comment:

1. PLF considered in five project instances is not correct. PP is requested to clarify the same.
  2. Please provide supporting documents for technical specifications for all five project instances.
- CAR 05 is open.

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| <b>Project Participant Response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 26/02/2016 |
| <ol style="list-style-type: none"> <li>1) PLF considered has been revised as per loan application to bank.</li> <li>2) Supporting documents for technical specifications for all five projects are as follows: <ul style="list-style-type: none"> <li>- Bhadla: Document already provided as part of first set of documents as – “06-Power Evac Clearance”</li> <li>- Achampet: Plant layout has already been provided, however additional document is being provided</li> <li>- Kalwakurthy, Mustyal, Pedda: document being provided</li> </ul> </li> </ol>                                                                                                                                                                                                                                                                                                                                                         |            |
| <b>Documents/ information provided by the Project Participant:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |
| <ul style="list-style-type: none"> <li>- CEIG approval for Achampet</li> <li>- CEIG approval for Kalwakurthy</li> <li>- CEIG approval for Mustyal</li> <li>- Plant layout for Mustyal</li> <li>- CEIG approval for Pedda</li> <li>- Plant Layout for Pedda</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |
| <b>Reasoning for acceptance <del>or non-acceptance</del>:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 29/02/2016 |
| <ol style="list-style-type: none"> <li>1. PP has now considered PLF from the document submitted to Bank for loan which is found correct. PP has provided proposal for long term secured loan. PP has also provided covering letter which is stamped as received by respective banks. The PLF is as per EB 48 Annex 11 hence accepted and closed out.</li> <li>2. PP has provided the supporting documents for technical specification for all project instances. PP has provided Electrical Inspectorate approval letter for energisation for four project instances in Telangana and report of committee constituted for connectivity and metering equipment to inter connect solar plant at Bhadla to grid. The assessment team has checked the documents and found that the information are consistent with the supporting documents provided, hence accepted and closed out.</li> </ol> <p>CAR 05 is closed.</p> |            |
| <b>Close out by Lead Assessor</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 29/02/2016 |

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| <b>Date:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 20/12/2015 | <b>Raised by:</b>        |            | Ashok Kumar |                                                       |
| <b>Type of Finding</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CAR        | <b>S. No. of Finding</b> | 6          | REFERENCE   | VCS Project Description, version 01, dated 26/11/2015 |
| <b>Details of the Finding:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |                          | 20/12/2015 |             |                                                       |
| <p>PP has used CEA database for the calculation of Grid Emission factor for the project activity. However, the combined margin grid emission factor for INDIA is considered by the PP for all components under the grouped project. It is observed that the few of the projects under the grouped project comes under NEWNE Grid and few are under Southern Grid. Thus, PP is requested to justify the applicability of Grid Emission factor (0.9832) considered for all project components under the grouped project.</p> |            |                          |            |             |                                                       |
| <b>Project Participant Response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                          | 18/02/2016 |             |                                                       |
| <p>For projects connected to NEWNE grid, the NEWNE grid emission factor is considered and for projects connected to southern grid, the Southern Grid emission factor is considered.</p> <p>Accordingly updates are made in the VCS-PD and the Emission Reduction Calculation Sheet.</p>                                                                                                                                                                                                                                    |            |                          |            |             |                                                       |
| <b>Documents/ information provided by the Project Participant:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                          |            |             |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |                          |            |             |                                                       |
| <b>Reasoning for <del>acceptance</del> or non-acceptance:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                          | 18/02/2016 |             |                                                       |
| <p>PP has now considered the grid emission factor of NEWNE grid for the projects falls under NEWNE grid and grid emission factor of Southern grid for the projects under Southern grid. The assessment team has checked the PD and ER sheet and found it correct, hence accepted.</p> <p>The CAR is opened due to ITR comments</p> <p>Emission factor for NEWNE and Southern grid are not correct.</p> <p>.</p>                                                                                                            |            |                          |            |             |                                                       |
| <b>Project Participant Response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                          | 26/02/2016 |             |                                                       |
| <p>The emission factor has been corrected in the VCS PD</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                          |            |             |                                                       |
| <b>Documents/ information provided by the Project Participant:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                          |            |             |                                                       |
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| <b>Reasoning for acceptance <del>or non-acceptance</del>:</b>                                                                                                                                                                                                                               | 29/02/2016 |
| <p>The emission factor are corrected in the PD. The assessment team has checked the calculation and found it correct, Emission factor is as per CEA database ver 10 and the same has been checked and found to be correct, hence accepted and closed out.</p> <p>Hence CAR 6 is closed.</p> |            |
| <b>Close out by Lead Assessor</b>                                                                                                                                                                                                                                                           | 29/02/2016 |

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------|------------|-------------|-------------------------------------------------------|
| <u>Date:</u>                                                                                                                                                                                                                                                                                                                                                       | 20/12/2015 | <u>Raised by:</u>        |            | Ashok Kumar |                                                       |
| <u>Type of Finding</u>                                                                                                                                                                                                                                                                                                                                             | CAR        | <u>S. No. of Finding</u> | 7          | REFERENCE   | VCS Project Description, version 01, dated 26/11/2015 |
| <b>Details of the <u>Finding</u>:</b>                                                                                                                                                                                                                                                                                                                              |            |                          | 20/12/2015 |             |                                                       |
| PP is requested to clarify the non-inclusion of details of monitoring of net electricity delivered to grid done separately for each project instances in VCS-PD under the grouped project.                                                                                                                                                                         |            |                          |            |             |                                                       |
| <b>Project Participant Response</b>                                                                                                                                                                                                                                                                                                                                |            |                          | 18/02/2016 |             |                                                       |
| The monitoring plan including monitoring parameter followed at site is similar for all project instances and specific details of each project instance are also included.                                                                                                                                                                                          |            |                          |            |             |                                                       |
| <b>Documents/ information provided by the Project Participant:</b>                                                                                                                                                                                                                                                                                                 |            |                          |            |             |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                    |            |                          |            |             |                                                       |
| <b>Reasoning for <del>acceptance</del> or non-acceptance:</b>                                                                                                                                                                                                                                                                                                      |            |                          | 18/02/2016 |             |                                                       |
| PP has clarified that monitoring plan including monitoring parameter (i.e. net electricity exported to grid) is similar for all project instances. Details specific to each project instance are also included. The same has been checked and found to be correct. The monitoring plan was also checked during site visit and found to be correct, hence accepted. |            |                          |            |             |                                                       |

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| The CAR is opened due to ITR comment                                                                                                                                                                                                                                                                                                                                                           |            |
| 1) In section 4.2, details with respect to five project instances are not mentioned                                                                                                                                                                                                                                                                                                            |            |
| 2) Description of central GHG information system and controls associated with project and its monitoring are not mentioned which is a requirement as per VCS standard                                                                                                                                                                                                                          |            |
| <b>Project Participant Response</b>                                                                                                                                                                                                                                                                                                                                                            | 26/02/2016 |
| 1. Details in section 4.2 are updated                                                                                                                                                                                                                                                                                                                                                          |            |
| 2. Details with respect to GHG information systems and control are mentioned                                                                                                                                                                                                                                                                                                                   |            |
| <b>Documents/ information provided by the Project Participant:</b>                                                                                                                                                                                                                                                                                                                             |            |
|                                                                                                                                                                                                                                                                                                                                                                                                |            |
| <b>Reasoning for acceptance <del>or non-acceptance</del>:</b>                                                                                                                                                                                                                                                                                                                                  | 29/02/2016 |
| 1. PP has provided details in section 4.2 with respected to value applied for each project activity instance. The same has been checked and found to be correct. Monitoring parameter is same for all initial project activity instance, hence same is accepted.                                                                                                                               |            |
| 2. PP has mentioned that Central GHG information system and controls will be maintained by Essel Mining & Industries Limited. Data for all the project activity instances will be maintained by coordinating and managing entity i.e. Essel Mining & Industries Limited. This data will be maintained in electronic format for entire crediting period plus two years. The same is acceptable. |            |
| Hence CAR 7 is closed.                                                                                                                                                                                                                                                                                                                                                                         |            |
| <b>Close out by Lead Assessor</b>                                                                                                                                                                                                                                                                                                                                                              | 29/02/2016 |

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| <u>Date:</u>                                                                                                                                              | 20/12/2015 | <u>Raised by:</u>        |            | Ashok Kumar |                                                       |
| <u>Type of Finding</u>                                                                                                                                    | CAR        | <u>S. No. of Finding</u> | 08         | REFERENCE   | VCS Project Description, version 01, dated 26/11/2015 |
| <u>Details of the Finding:</u>                                                                                                                            |            |                          | 20/12/2015 |             |                                                       |
| PP is requested to provide the details of stakeholder invitation process for each project instances under the grouped project in section 6 of the VCS PD. |            |                          |            |             |                                                       |

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| <b>Project Participant Response</b>                                                                                                                                                                                                                                                                                                                                                                  | 18/02/2016 |
| Stakeholder invitation process has been updated in VCS PD.                                                                                                                                                                                                                                                                                                                                           |            |
| <b>Documents/ information provided by the Project Participant:</b>                                                                                                                                                                                                                                                                                                                                   |            |
|                                                                                                                                                                                                                                                                                                                                                                                                      |            |
| <b>Reasoning for acceptance or non-acceptance:</b>                                                                                                                                                                                                                                                                                                                                                   | 18/02/2016 |
| <p>The stakeholder invitation process is now transparently discussed in the revised PD for each project activity under the grouped project. The PP has also provided the newspaper advertisement, stakeholder's feedback.</p> <p>The assessment team has reviewed the PD and the documents as provided and found correct and consistent, hence accepted and closed out.</p> <p>CAR 08 is closed.</p> |            |
| <b>Close out by Lead Assessor</b>                                                                                                                                                                                                                                                                                                                                                                    | 18/02/2016 |