




**Validation report form for  
CDM project activities  
(Version 04.0)**

*Complete this form in accordance with the instructions attached at the end of this form.*

**BASIC INFORMATION**

<b>Title of the project activity</b>	Bundled Solar Power Project by Emami Power Limited
<b>Scale of the project activity</b>	<input type="checkbox"/> Large-scale <input checked="" type="checkbox"/> Small-scale
<b>Version number of the validation report</b>	1.2
<b>Completion date of the validation report</b>	27/03/2020
<b>Version number of the PDD to which this report applies</b>	10.0
<b>Date when PDD was uploaded for global stakeholder consultation</b>	15/03/2017
<b>Project participants</b>	Emami Power Limited
<b>Host Party</b>	India
<b>Applied methodologies and standardized baselines</b>	Methodology: AMS-I.D: Grid connected renewable electricity generation (Version 18, EB 18)
<b>Mandatory sectoral scopes</b>	Sectoral Scope : 1 - Energy industries (renewable - / non-renewable sources)
<b>Conditional sectoral scopes, if applicable</b>	Not applicable
<b>Estimated amount of annual average GHG emission reductions or GHG removals by sinks</b>	21,633 tCO <sub>2</sub> e
<b>Name and UNFCCC reference number of the DOE</b>	EPIC Sustainability Services Private Limited (E-0062)
<b>Name, position and signature of the approver of the validation report</b>	 K.Suryanarayana Murthy, Managing Director

## SECTION A. Executive summary

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Emami Power (hereinafter referred as Project participant or PP) had engaged EPIC to perform validation of the CDM project activity titled “Bundled Solar Power Project by Emami Power Limited” (hereinafter called “the project”). The project activity involves installation of Green field Grid connected 3.3 MWp (3.0 MW AC) solar power project at village Perunali, District – Ramanathapuram in Tamil Nadu & 11 MWp (10 MW AC) project at village Neralekunte, District – Tumkur in Karnataka/4/, the total project capacity is 13.0 MW AC. The emission reductions for the project activity are calculated based on AC capacity i.e 13 MW. The project activity utilises available solar energy to produce renewable electricity through the installation of the Poly Crystalline Solar Photo Voltaic (SPV) modules. The generated electricity from the project is sold to the national grid of India thereby displacing the electricity from the generation mix of power plants connected to the grid dominated by thermal/fossil fuel based power plant.

The power plant comprises of Solar PV modules, junction boxes / combiner boxes, module mounting structure, switch yard, evacuation facility etc. The PV module is made from high efficiency poly crystalline solar cells. Modules generate direct current (DC) which is converted to alternating current (AC) by inverter hardware. Power generated is supplied to southern grid (part of national grid) of India.

Initially, the 3.00 MW solar power project at Tamilnadu was developed by Emami Cement Limited and the 10.0 MW solar power project at Karnataka was developed by Emami Power Limited. Later on Emami Cement Ltd. got demerged in Emami Power Ltd. under the order of National Company Law Tribunal (NCLT) dated 17th December 2018. All the assets of solar division of Emami cement limited is now merged with Emami Power Limited.

The estimated annual average electricity generation of the project activity is 22,967 MWh/4/ and total estimated generation over the chosen first 7 year renewable crediting period is 160769 MWh. The annual average GHG emission reduction in the first renewable crediting period through the project activity will be 21,633 tCO<sub>2</sub>e/4/ and total GHG emission reductions over the first 7 year renewable crediting period will be 1,51,431 tCO<sub>2</sub>e.

The Solar power project activity is renewable energy based bundled power project/30/. The electricity generated by the project activity is being supplied to the national grid of India. The same has been checked through the PPA/18/ signed between Emami Power Ltd. and Chamundeshwari Electricity Supply Corporation Ltd. on 25<sup>th</sup> September, 2014 for 10.00 MW solar power project in Karnataka & between Emami Cement Ltd. and Tamilnadu Generation and distribution Corporation Ltd. (TANGEDCO) on 06<sup>th</sup> October, 2015 for 3.00 MW solar power project in Tamilnadu. Thus the project aims at reducing GHG emissions by replacing the same amount of electricity from the national grid which would otherwise be generated by a fossil fuel based power plants.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to the Kyoto Protocol, the CDM rules and modalities as agreed in the Bonn Agreement, the Marrakech Accords and the CDM Executive Board's decisions. EPIC has employed a risk-based approach in the validation based on the recommendations in the Validation and Verification Standard version 2.0/1/ (hereinafter referred to as VVS), focusing on validity of applied methodology/2/, baseline, monitoring plan and emission reduction calculations as documented in the updated PDD version 10.0/4/. The validation is not meant to provide any consulting towards the client. However, the stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

The purpose of a validation is to have an independent third party assessment of the project design, applicability of the project under the applied methodology AMS-I.D “Approved Small Scale methodology: “Grid connected renewable electricity generation” (EB 81, Version 18)/2/ baseline of the project, additionality, monitoring plan, emission reduction calculation etc. and the project's compliance with relevant UNFCCC and host country criteria. The validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

**SECTION B. Validation team, technical reviewer and approver****B.1. Validation team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader	IR	Prabu das	Anbazhagan	EPIC	√	√	√	√

**B.2. Technical reviewer and approver of the validation report**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Radhamadhavan	Vijayaraghavan	EPIC
2.	Approver	IR	Murthy	K.Suryanarayana	EPIC

**SECTION C. Means of validation****C.1. Desk/document review**

>> As an initial step, the validation team has reviewed the PDD version 1.0/3/ and additional background documents submitted by the project participant. Based on the review and the findings from on-site observations and follow-up interviews the validation team has issued corrective action requests/ clarification requests. As a result of these findings, the PP has revised the PDD version 10.0/4/ (hereinafter referred to as updated PDD). The resolution of the findings by the validation is presented in Appendix 4 of this report.

**C.2. On-site inspection**

Duration of on-site inspection: 26/07/2017 to 27/07/2017				
No.	Activity performed on-site	Site location	Date	Team member
1.	<p><b><u>Opening Meeting at Karnataka Site</u></b></p> <ul style="list-style-type: none"> <li>Prior consideration of CDM as per UNFCCC guidelines</li> <li>Board resolution / Management decision</li> <li>Baseline and additionality</li> <li>Compliance to regulatory requirements</li> </ul> <p><b><u>Document Review and Site visit (10.0 MW)</u></b></p> <ul style="list-style-type: none"> <li>General information about the project</li> <li>Serious consideration of CDM</li> <li>Chronology of Events/ Implementation cycle of the project activity</li> <li>Additionality</li> <li>Public funding/diversion of ODA</li> <li>Local Stakeholder consultation processes (including meeting with local stakeholders)</li> <li>Legal/ Statutory Clearances and Agreements Signed</li> <li>Baseline determination</li> <li>Application of appropriate Methodology</li> <li>Operation and maintenance Procedures</li> </ul>	Karnataka	26/07/2017	Mr. A Prabu das Dr. G Vishnu

	<ul style="list-style-type: none"> <li>• Technical details of project</li> <li>• Data monitoring and storage practices</li> <li>• Calibration and maintenance requirement of the equipment</li> <li>• Monitoring Methodology</li> <li>• Project Site layout</li> <li>• Project implementation, operation, boundary issues</li> </ul>			
2.	<p><b><u>Document Review and Site visit (3.0 MW)</u></b></p> <ul style="list-style-type: none"> <li>• General information about the project</li> <li>• Serious consideration of CDM</li> <li>• Chronology of Events/ Implementation cycle of the project activity</li> <li>• Additionality</li> <li>• Public funding/diversion of ODA</li> <li>• Local Stakeholder consultation processes (including meeting with local stakeholders)</li> <li>• Legal/ Statutory Clearances and Agreements Signed</li> <li>• Baseline determination</li> <li>• Application of appropriate Methodology</li> <li>• Operation and maintenance Procedures</li> <li>• Technical details of project</li> <li>• Data monitoring and storage practices</li> <li>• Calibration and maintenance requirement of the equipment</li> <li>• Monitoring Methodology</li> <li>• Project Site layout</li> <li>• Project implementation, operation, boundary issues</li> </ul>	Tamil Nadu	27/07/2017	Mr. A Prabu das Dr. G Vishnu

## C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	M.R	Ghosh	Emami Power	26/07/2017 to 27/07/2017	<ul style="list-style-type: none"> <li>➤ General information about the project</li> <li>➤ CDM consideration</li> <li>➤ Baseline determination</li> <li>➤ Additionality demonstration</li> <li>➤ Implementation of the project</li> <li>➤ Project Boundary</li> <li>➤ Operation and maintenance procedures</li> <li>➤ Training of site personnel</li> <li>➤ Calibration and maintenance of monitoring &amp; measuring equipment</li> <li>➤ Technical specification of the project equipment (SPV modules, Inverter)</li> <li>➤ Project implementation</li> </ul>	Mr. A Prabu das Dr. G Vishnu
2.	Vamsi P	Pavuluri	Emami Power		<ul style="list-style-type: none"> <li>➤ General information about the project and the completeness of the PDD</li> <li>➤ CDM prior intimation</li> <li>➤ Local Stakeholder consultation</li> <li>➤ CER calculation spreadsheet</li> </ul>	Mr. A Prabu das Dr G Vishnu
3.	S R. M.	Prabhu Anand Sakthivel	O&M Sterling & Wilson	26/07/2017 to 27/07/2017	<ul style="list-style-type: none"> <li>➤ Performance of project activity - Power generation, and auxiliary consumption</li> </ul>	Mr. A Prabu das Dr G Vishnu
4.	P Abdul Khadar Naveen	Soosai Jeelani Shetty	Contract staff	26/07/2017 to 27/07/2017	<ul style="list-style-type: none"> <li>➤ Data management and reporting, QA/QC systems</li> <li>➤ Electricity Monitoring / measuring systems &amp; Data verification</li> <li>➤ Record keeping – daily electricity generation report, breakdown / maintenance log</li> <li>➤ Metering guidelines, Meter specifications – Accuracy, make</li> <li>➤ Calibration requirements – procedure, frequency/schedule, records</li> <li>➤ Emergency</li> </ul>	

					procedures – Change / failure in meters	
5.	Prasanna A	Kumar Suruli	Local stakeholders	26/07/2017 to 27/07/2017	➤ Local Stakeholder consultation process	Mr. A Prabu das Dr G Vishnu

#### C.4. Sampling approach

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No sampling approach is used for this validation scope by the validation team.

#### C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Demonstration of prior consideration of the CDM	-	-	-
Identification of project type	-	-	-
General description of project activity	2	2	-
Application and selection of methodologies and standardized baselines	-	-	-
- Application of methodologies and standardized baselines	-	1	-
- Deviation from methodology and/or methodological tool	-	-	-
- Clarification on applicability of methodology, tool and/or standardized baseline	-	-	-
- Project boundary, sources and GHGs	-	-	-
- Baseline scenario	-	-	-
- Demonstration of additionality	-	1	-
- Estimation of emission reductions or net anthropogenic removals	1	1	-
- Monitoring plan	-	2	-
Start date, crediting period type and duration	-	1	-
Environmental impacts	-	-	-
Local stakeholder consultation	1	-	-
Sustainable development co-benefits	-	-	-
Approval	-	-	-
Authorization	-	-	-
Modalities of communication	-	-	-
Global stakeholder consultation	-	-	-
Others (please specify)	-	-	-
<b>Total</b>	<b>04</b>	<b>08</b>	<b>00</b>

### SECTION D. Validation findings

#### D.1. Demonstration of prior consideration of the CDM

<b>Means of validation</b>	The assessment team has confirmed the name of the project activity in the list of notification received by the UNFCCC available on the UNFCCC website. The assessment team verified that the CDM was seriously considered in the decision to implement the project and complies with para 39, 41 of CDM VVS ver 02.0/1/ and as per requirement of PCP ver 02.0/1/
<b>Findings</b>	No CAR/CL is raised in this section.
<b>Conclusion</b>	The validation team has reviewed the Letter of Approvals provided by the PPs for both the Karnataka and Tamil Nadu site projects and conformed 12/08/2015 (LoA issued to Sterling and Wilson, for Karnataka) is the start date of the project as per Glossary of CDM terms, version 10.0/20/. Since the start date of the project activity is after 02 August 2008, the validation team checked the UNFCCC web site for prior consideration notification and found that the same was uploaded on UN web site dated 25/01/2016, also the DNA was notified via e-mail on the same date. The validation team has reviewed the e-mail

	notification for the conformance. The prior notification/15/ is dated 25/01/2016 which is within 180 days of project start date. Hence, validation team confirm that the prior consideration clause as per Section 4.1 of the "CDM Project Cycle Procedure for project activities, version 02.0 and para 39, 41 of CDM VVS ver 02.0 has been fulfilled.
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## D.2. Identification of project type

<b>Means of validation</b>	The proposed project activity is a renewable resource grid connected power project with installed capacity 13.0 MW/4/,/13/,/12/,/18/. As the project activity is renewable and the capacity of the project activity is less than 15 MW, the project falls under type I – Renewable Energy projects. The project applies the small scale approved methodology for proposed CDM project activity categories, "AMS-I.D-Grid connected renewable electricity generation - Version 18.0/2/.
<b>Findings</b>	No CAR/CL is raised in this section.
<b>Conclusion</b>	<p>The project activity is power generated from the Solar power project. Since the project is renewable energy generation and hence falls under following:</p> <p><b>Sectoral Scope :</b> 01 - Energy industries (renewable / non-renewable sources)  <b>Project Type:</b> Type-I - Renewable Energy Projects  <b>Project Category:</b> AMS-I.D: Grid-connected renewable electricity generation - Version 18.0 (EB 100)</p> <p>The validation team has confirmed the capacity of the proposed project activity by reviewing the submitted document's such as signed LoA, PPA/18/, Commissioning certificates/23/ and is of opinion that project activity is eligible as small-scale CDM project activity.</p> <ol style="list-style-type: none"> <li>1. The validation team is of opinion that applied small scale approved baseline and monitoring methodology is approved by UNFCCC and PDD has used the version of the applied baseline and monitoring methodology that is valid at the time of request for registration.</li> <li>2. The PDD has mentioned and correctly applied the tools and guidance relevant as per applied methodology.</li> <li>3. The project activity is eligible as a small scale project activity and complies with the requirement stipulated in VVS, version 02.0</li> </ol>

## D.3. Description of project activity

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether the description of the proposed CDM project activity in the PDD is accurate, complete, and provides an understanding of the proposed CDM project activity.
<b>Findings</b>	Two CARs (CAR01 and CAR03) and two CLs (CL01 and CL02) are raised in this section.
<b>Conclusion</b>	<p><b><u>Project location:</u></b>  The project activity involves installation of Green field Grid connected 3.3 MWp (3.0 MW AC) solar power project at village Perunali, District – Ramanathapuram in Tamil Nadu &amp; 11.0 MWp (10.0 MW AC) project at village Neralekunte, District – Tumkur in Karnataka/4/, the total project capacity is 13.0 MW (AC). The GPS coordinates of the Tamil Nadu site of the project are 09° 13'37.2" N (9.227 N) and 78°19'27.6" E (78.32433 E), and that of Karnataka site project are 13° 59' 33.04" N (13.992511 N) and 77°21'56.79" E (77.365775 E).</p> <p><b><u>Scenario existing prior to the implementation of the project activity:</u></b>  In the absence of the project activity the equivalent amount of power would have been generated in the fossil fuel dominated grid. This is evident from the electricity generation scenario of the host country that the grid is dominated by fossil fuel-based power plants. Hence, it is confirmed that electricity equivalent to the project activity would have been generated in grid of other power plants added to the grid.</p> <p><b><u>Project scenario:</u></b>  Initially, the 3.00 MW solar power project at Tamil nadu was developed by Emami Cement Limited and the 10.0 MW solar power project at Karnataka was developed</p>

by Emami Power Limited. Later on Emami Cement Ltd. got demerged in Emami Power Ltd. under the order of National Company Law Tribunal (NCLT) dated 17th December 2018. All the assets of solar division of Emami cement limited is now merged with Emami Power Limited. Since this is a bundled project activity, the bundling form using the valid version of the CDM-SSC-BUN-FORM/30/ is submitted along with this request for registration.

**Technology:** The project activity involves new installation of high efficiency poly crystalline silicon solar cells. The power plant comprises of Solar PV modules, junction boxes / combiner boxes, module mounting structure, transformers, switch yard, evacuation facility etc. The solar panels are installed in arrays. The modules in the each array are connected in parallel and/or series in order to get the preferred current & voltage which match with the rated input parameters of the inverter.

By reviewing the submitted documents such as LoA, PPA/18/, agreement signed between PP & SWPL/9/ and Commissioning certificates/23/ etc the validation team has confirmed correctness and accuracy of site location, project design, and proposed capacities of the project activity. Further, conformation is achieved through physical site visit and interview of the project participant and their representatives. Lifetime of the project activity is 25 years as guaranteed by the equipment supplier.

**Technical Specification/12/,/13/ of the project equipment are as follow:**

**Solar cell modules:**

Parameter	Unit	Description
Type	-	Polycrystalline
Number of PV Modules	-	35,500 (310 Wp) for Karnataka 10,660 (310 Wp) for Tamilnadu
Model	-	RSM-72-6-310P
Nominal Power per PV Module	Wp	310
Total Installed Capacity	MW	11.005
Rated voltage (Vmp) STC	V	36.40
Rated current (Imp) STC	A	8.52
Cell Dimensions	mm	1956 x 992 x 40 mm.
Efficiency	%	15.98
Average Lifetime	Years	25
Manufacturer	-	Risen Energy Co. Ltd.

**Inverter:**

Parameter	Unit	Description
Model		PVS 800-57-1000KW-C
Quantity	No.	10
Input data (DC) – Max. DC power	kWp	1100
Voltage range	V	600-850
Maximum DC voltage	V	1100
Max. DC current	A	1710
No. of protected DC inputs		8 to 20 (+/-)
Output data (AC) – nominal power	kW	1000
Max. output power	kW	1200
Nominal current	A	1445
Nominal output voltage	V	400
Max. efficiency	%	98.9
External auxiliary voltage		230 V,50 Hz
Manufacturer		ABB



	<p>The PV power plants are equipped with PV modules of 310Wp each and the inverters that convert direct current (DC) into alternating current (AC) electricity. The inverters will be connected to transformers from where the electricity will be connected to evacuation lines.</p> <p>The generated electricity is proposed to be sold to the Indian unified grid as conformed from the PPA/18/, commissioning certificates/23/ and on-site visit. The PPA/18/ is signed between Emami Power Ltd. and Chamundeshwari Electricity Supply Corporation Ltd. on 25<sup>th</sup> September, 2014 for the 10.00 MW solar power project in Karnataka &amp; between Emami Cement Ltd. and Tamil nadu Generation and distribution Corporation Ltd. (TANGEDCO) on 06<sup>th</sup> October, 2015 for the 3.00 MW solar power project in Tamil nadu.</p> <p>The validation did not reveal any information indicating that the Project can be seen as a diversion of official development assistance (ODA)/17/ funding towards the host country.</p>
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#### D.4. Application and selection of methodologies and standardized baselines

##### D.4.1. Application of methodologies and standardized baselines

<b>Means of validation</b>	As per VVS version 2.0, the validation has determined whether the baseline and monitoring methodology (AMS-I.D, version 18.0) selected by the PPs are the valid versions of those approved by the Board and has checked that the selected baseline and monitoring methodology is applicable to the proposed CDM project activity and that the selected version is valid at the time of submission of the proposed CDM project activity for registration.				
<b>Findings</b>	One CAR (CAR 04) is raised in this section.				
<b>Conclusion</b>	<p>The validation team has confirmed that the applied version of methodology "Grid connected renewable electricity generation" (AMS-I.D, version 18.0)/2/ is valid and the latest one as observed from UNFCCC site. The selected baseline methodology. i.e., AMS-I.D, version 18.0, is correctly applied to this type of grid connected renewable generation by Solar power. The project activity satisfies all the applicable conditions of the applied methodology as described below:-</p> <table border="1"> <thead> <tr> <th>Methodology applicability criteria</th><th>Validation team assessment</th></tr> </thead> <tbody> <tr> <td>           1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass:           <ul style="list-style-type: none"> <li>(a) Supplying electricity to a national or a regional grid.</li> <li>(b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.</li> </ul> </td><td>           The proposed CDM project activity involves the installation of the 13 MW solar power plant. The validation team reviewed the LoA/11/, PPA/18/, agreement signed between PP &amp; Sterling &amp; Wilson Private Limited (SWPL)/9/ and Commissioning certificates/23/. The electricity generated from the project activity is exported to the Southern Grid (part of unified grid of India). The validation team also verified the grid connections through the review of PPA/18/ and by on-site inspection, thus it can be confirmed that it is connected to the grid. As per CEA database/29/, Karnataka and Tamil nadu falls under the Southern Regional grid (part of unified grid) of India, the geographic and system boundaries of which are clearly identified and information on the characteristics of the grid is available. Based on the above assessment and review of PPA/18/ document, the validation team confirms that the         </td></tr> </tbody> </table>	Methodology applicability criteria	Validation team assessment	1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: <ul style="list-style-type: none"> <li>(a) Supplying electricity to a national or a regional grid.</li> <li>(b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.</li> </ul>	The proposed CDM project activity involves the installation of the 13 MW solar power plant. The validation team reviewed the LoA/11/, PPA/18/, agreement signed between PP & Sterling & Wilson Private Limited (SWPL)/9/ and Commissioning certificates/23/. The electricity generated from the project activity is exported to the Southern Grid (part of unified grid of India). The validation team also verified the grid connections through the review of PPA/18/ and by on-site inspection, thus it can be confirmed that it is connected to the grid. As per CEA database/29/, Karnataka and Tamil nadu falls under the Southern Regional grid (part of unified grid) of India, the geographic and system boundaries of which are clearly identified and information on the characteristics of the grid is available. Based on the above assessment and review of PPA/18/ document, the validation team confirms that the
Methodology applicability criteria	Validation team assessment				
1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: <ul style="list-style-type: none"> <li>(a) Supplying electricity to a national or a regional grid.</li> <li>(b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.</li> </ul>	The proposed CDM project activity involves the installation of the 13 MW solar power plant. The validation team reviewed the LoA/11/, PPA/18/, agreement signed between PP & Sterling & Wilson Private Limited (SWPL)/9/ and Commissioning certificates/23/. The electricity generated from the project activity is exported to the Southern Grid (part of unified grid of India). The validation team also verified the grid connections through the review of PPA/18/ and by on-site inspection, thus it can be confirmed that it is connected to the grid. As per CEA database/29/, Karnataka and Tamil nadu falls under the Southern Regional grid (part of unified grid) of India, the geographic and system boundaries of which are clearly identified and information on the characteristics of the grid is available. Based on the above assessment and review of PPA/18/ document, the validation team confirms that the				

		proposed CDM project activity is a Green Field grid connected renewable power generation project based on solar energy. Hence, this applicability condition is fulfilled.
	2. 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 Table 2	Based on the review of PPA/18/ document and on-site visit, the validation team confirms that the proposed CDM project activity supplies electricity to southern grid (part of unified Indian grid), thus falls under option 1 of Table 2 of AMS-I D. Hence, this applicability condition is fulfilled.
	3. 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); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s).	Through the review of agreement for LoA/11/, erection and commissioning of solar plant equipment/23/ and the physical verification at the site, it is confirmed that the project activity is not a retrofit or replacement of older PV panels. Based on the physical site visit and the documentary evidence, the validation team is able to confirm that the project activity is a Greenfield project and not a capacity addition. Hence, this applicability condition (a) is relevant to the proposed CDM project activity.
	4. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: <ul style="list-style-type: none"> <li>• The project activity is implemented in an existing reservoir with no change in the volume of reservoir;</li> <li>• 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>;</li> <li>• 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>.</li> </ul>	This applicability condition does not apply since the project activity is a solar energy based power project.
	5. 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 CDM 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.	As described in the above applicability conditions, the proposed project activity is a solar based power project and hence this condition is not relevant to the proposed CDM project activity. Physical verification at the site confirmed that the project activity is not an add up of a renewable and nonrenewable component and only Solar PV panels are involved in the project activity having a total capacity

		<p>of 13 MW, which classifies as a small scale project activity (&lt; 15 MW).</p> <p>The project activity does not involve any combustion hence co-firing is not relevant to the project activity.</p>
	6. Combined heat and power (co-generation) systems are not eligible under this category.	As described in the above applicability conditions, the proposed project activity is a solar based power project and hence this condition is not relevant to the proposed CDM project activity.
	7. In the case of project activities that involve the 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.	Through the review of agreement for LoA/11/, erection and commissioning of solar plant equipment/23/ and the physical verification at the site, it is confirmed that the project activity is not an add up of a renewable or non-renewable component. Based on the physical site visit and the documentary evidence, the validation team is able to confirm that the project activity is a Greenfield project and not a capacity addition. Hence, this applicability condition is not relevant to the proposed CDM project activity.
	8. In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	Through the review of agreement for LoA/11/, erection and commissioning of solar plant equipment/23/ and the physical verification at the site, it is confirmed that the project activity is not a retrofit or replacement of older PV panels. Based on the physical site visit and the documentary evidence, the validation team is able to confirm that the project activity is a Greenfield project. Hence, this applicability condition is not relevant to the proposed CDM project activity.
	9. 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.	As described in the above applicability conditions, the proposed project activity is a solar based power project and hence this condition is not relevant to the proposed CDM project activity.
	10. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation	As described in the above applicability conditions, the proposed project activity is a solar based power project and hence this condition is not

	of biomass" shall apply.	relevant to the proposed CDM project activity.
	<p>The validation team is convinced that as this project being about the generation of electricity by using renewable source of energy i.e. solar does not result in any emission from project or leakages other than described in methodology.</p> <p>The applicability of this methodology to the project activity is justified as:</p> <ul style="list-style-type: none"> <li>➤ The project is a new installation of Solar PV panels which harnesses the solar potential available in the region and it displaces fossil fuel based electricity generation from the southern regional grid of India.</li> <li>➤ The project activity is connected to southern grid (part of unified grid) of India, and the system boundaries are clearly identified and information on the characteristics of this grid is available.</li> <li>➤ The project does not involve an on-site switch from fossil fuels to a renewable source.</li> </ul>	

#### D.4.2. Deviation from methodology and/or methodological tool

<b>Means of validation</b>	As per VVS version 2.0, the validation has determined whether the PP deviated from the approved baseline and monitoring methodology and/or methodological tool.
<b>Findings</b>	No CAR/CL is raised in this section.
<b>Conclusion</b>	There is no deviation from the applied methodology reported in this submission.

#### D.4.3. Clarification on applicability of methodology, tool and/or standardized baseline

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined to ensure that the request is not submitted with the intention of revising an approved methodology, an approved tool and/or an approved standardized baseline to expand its applicability.
<b>Findings</b>	No CAR/CL is raised in this section.
<b>Conclusion</b>	There is no such request made along with this submission.

#### D.4.4. Project boundary, sources and GHGs

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether all main GHG emission sources, the physical delineation of the proposed CDM project activity and other relevant project and baseline emission sources covered in the selected methodology and, where applicable, the selected standardized baseline are included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity.
<b>Findings</b>	No CAR/CL is raised in this section.
<b>Conclusion</b>	GHG sources and their inclusion or exclusion are detailed out in a Table under B.3 of the PDD in line with the applied methodology. The project boundary is applied as per the methodology AMS I-D version 18.0/2/.

#### D.4.5. Baseline scenario

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether the baseline identified for the proposed CDM project activity is the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the project activity and determined whether any procedure contained in the methodology to identify the most reasonable baseline scenario has been correctly applied.
<b>Findings</b>	No CAR/CL is raised in this section.
<b>Conclusion</b>	The procedure to identify the baseline is derived from the AMS I-D methodology version 18.0/2/. The proposed project activity is a new grid connected solar (renewable) power plant; it does not fit into capacity addition or retro fitment scenario. Thus, the baseline scenario as defined in the selected methodology is the electricity exported to the grid would have been supplied by the operation of grid connected power plants and by addition of new generation sources, as reflected by the Combined Margin calculated as per the tool to calculate the emission factor of

an electricity system/10/.

Calculations are based on data from "CO<sub>2</sub> Baseline Database for the Indian Power Sector", Version 15.0, dated Dec 2019, from the Central Electricity Authority (CEA)/29/, an autonomous body under the Ministry of Power, Government of India. The CEA has published on its website (<http://www.cea.org>) the value of emission coefficients for the unified grid of India arrived at by considering weighted average values.

The version of the CO<sub>2</sub> baseline database is the latest valid version, and that the database prepared by Ministry of Power (Govt of India) is designed to be consistent with the "Tool to calculate the emission factor for an electricity system"/10/.

The operating margin emission factor of the Indian grid is considered as 0.962 tCO<sub>2</sub>e/MWh (calculated as weighted average of the recent three years (2016-17, 2017-18 and 2018-19) and build margin emission factor of the grid is considered as 0.88 tCO<sub>2</sub>e/MWh (for the year 2018-19) and thus the combined margin baseline emission factor of the grid have been calculated as 0.942 tCO<sub>2</sub>e/MWh. The value has been checked to have applied correctly. The baseline under the adopted methodology AMS I-D/2/ is calculated by multiplying the grid emission factor (tCO<sub>2</sub>e/MWh) and the net electricity supplied (in MWh) by this project activity consisting of 13.0 MW of solar power plant energy generation connected to the Indian grid/29/.

#### **Determination of Grid emission factor (EF<sub>CO<sub>2</sub>, grid, y</sub>)**

The baseline grid emission factor is calculated in accordance with the "Tool to calculate the emission factor of an electricity system", (version 07.0)/10/. The following steps were performed to validate the grid emission factor:

- As the project is located in the states of Karnataka and Tamil nadu which are connected to the Indian Electricity Grid, the assessment team confirmed that the Indian Grid is the relevant "project electricity system".
- It was confirmed by the assessment team that only grid power plants have been included in the calculation for the operating margin and build margin emission factor. This is in accordance with the Option 1 of step 2 of the latest "Tool to calculate the emission factor for an electricity system"
- It has been validated by the assessment team from the CO<sub>2</sub> Baseline Database, version 15/29/ issued by Central Electricity Authority (CEA) that the percentage of total grid generation by low cost/must run plants for the Grid is less than 50 % of the total generation. Hence, the Simple OM method can be used to calculate the Operating Margin Emission factor for the project activity.
- The Central Electricity Authority, Ministry of Power, Government of India has published a database of Carbon Dioxide Emission from the power sector in India based on detailed authenticated information obtained from all operating power stations in the country. The Operating Margin and build Margin in the CEA database/29/ is calculated using the guidelines provided by the UNFCCC in the "Tool to calculate the emission factor for an electricity system".
- The Operating Margin used in the PDD/4/ and ER sheet/4/ is a 3-year generation-weighted average Emission Factor. The generation data of the year 2016-17, 2017-18 and 2018-19 were used in the calculation. It was confirmed by the assessment team that it was based on the most recent valid data available at the time of submission of the CDM-PDD to the DOE for validation. The validated value of OM is 0.962 tCO<sub>2</sub>/MWh (refer ER sheet/4/)
- In accordance with the applied tool, the build margin is calculated in the CEA database as the average emissions intensity of the 20% most recent capacity additions in the grid based on net generation. The validated value of BM is 0.88 tCO<sub>2</sub>/MWh (refer ER sheet/4/)
- According to the "Tool to calculate the emission factor of an electricity system", the weights for OM and BM for calculating combined margin are 0.75 and 0.25 respectively for solar power generation. The validated value of CM is 0.942 tCO<sub>2</sub>/MWh (refer ER sheet/4/)

	Since the applied methodology has already defined the baseline scenario, no further analysis is required according to the VVS Version 2.0.
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#### D.4.6. Demonstration of additionality

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether the proposed CDM project activity is additional as demonstrated in the PDD; determined whether CDM benefits were considered necessary in the decision to undertake the project as a proposed CDM project activity; assessed the list of identified credible alternatives to the proposed CDM project activity in the PDD selected to determine the most realistic baseline scenario; if barrier analysis was used to demonstrate the additionality of the proposed CDM project activity, the validation team has determined whether the proposed CDM project activity faces barriers that prevent the implementation of this type of proposed CDM project activity or that do not prevent the implementation of at least one of the alternatives; The validation team has determined whether CDM benefits were considered necessary in the decision to undertake the project as a proposed CDM project activity.
<b>Findings</b>	One CAR (CAR05) is raised in this section.
<b>Conclusion</b>	<p><b>Simplified procedure to demonstrate additionality</b></p> <p>The project activity is small scale (&lt;15MW) in size and the methodology selected is AMS I- D version 18.0/2/.</p> <p>As per para '(11a) - i' the 'Methodological Tool 21 - Demonstration of Additionality of small scale Project Activity' (version 27), the project comes under positive of grid-connected renewable electricity generation technologies that are automatically defined as additional, without further documentation of barriers.</p> <p>Since the project activity is a grid connected solar photovoltaic electricity generation project of capacity 13 MW, it is concluded from the positive list that the project activity is automatically additional and does not require demonstration of barriers.</p> <p>Further, since the project activity is auto additional, the PLF assessment of the project is limited to the calculations of baseline emissions. Please refer to sec D.4.7 for assessment of PLF.</p>

#### D.4.7. Estimation of emission reductions or net anthropogenic removals

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether the steps taken and the equations and parameters applied in the PDD to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected methodology including applicable tool(s) and, where applicable, the selected standardized baseline and the "Standard for sampling and surveys for CDM project activities and programme of activities.
<b>Findings</b>	One CAR (CAR08) and one CL (CL04) is raised in this section.
<b>Conclusion</b>	<p>AMS I - D Version 18 and the methodological tool "Tool to calculate the emission factor for an electricity system"/10/ and correct equations and parameters have been used accordingly as described below.</p> <p>The emission reductions (ERy) of the project activity are the difference between baseline emissions (BEy) and project emissions (PEy) as follows:</p> $ERy = BEy - PEy$ <p><b>Baseline Emissions:</b></p> <p>As per the methodology AMS I-D Version 18/2/, paragraph 22, the baseline emissions include only CO<sub>2</sub> emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants</p>

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

Where:

$BE_y$  = Baseline emissions in year y (tCO<sub>2</sub>)

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

$EF_{grid,CM,y}$  = 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" (tCO<sub>2</sub>/MWh)/10/

$EG_{PJ,y}$  for ex-ante, calculation is calculated as per the following formula

$$\begin{aligned} \text{Thus } EG_{PJ,y} &= \text{Karnataka site} + \text{Tamil Nadu site} \\ &= 17,827 + 5140 \text{ MWh} \\ &= 22,967 \text{ MWh} \end{aligned}$$

$$BE_y = 22,967 \text{ MWh} \cdot 0.942 \text{ tCO}_2 \text{ e/MWh}$$

$$= 21,633 \text{ tCO}_2 \text{ e for the first year.}$$

#### PLF assessment:

The PLF of the project activity has been considered as 20.35% for Karnataka site and 19.56% for Tamil nadu site and the value is sourced from the third party contracted by the PP/13/. The sourcing of PLF is as per option 3(b) of "GUIDELINES FOR THE REPORTING AND VALIDATION OF PLANT LOAD FACTORS", annex 11 of EB 48/33/ and is deemed to be realistic. The validation team has reviewed the DPR prepared by the third party for the conformance. The net electricity supplied to the grid will be calculated ex-post by the difference of measured export and measured import of electricity as described in the monitoring plan of the PDD. Further, *since the additionality of the project is demonstrated by Simplified procedure to demonstrate additionality (positive list), the impact of PLF on additionality of the project is not assessed.*

The same PLF value has been used in the calculation of the emission reductions in the ER calculation spread sheet/11/.

#### Project emissions:

Operation of this solar power generation plant does not use any fossil fuel for its operation and will not emit any GHG gas. Hence the project emission from the project activity is zero.

#### Leakage:

The leakage is zero since the technology utilized is new and the equipment is not transferred from another project activity.

#### Emission reduction:

The annual average of net generated electricity of the project for 7 year crediting period is estimated to be 22967 MWh (based on the PDD/4/ and the ER sheet/4/) and the baseline emissions as 21,633 tCO<sub>2</sub>e. According to the above information, the emission reductions of the project is calculated as in the following (para 61 of the methodology):

$$ER_y = BE_y - PE_y$$

$$= 21,633 - 0 = 21,633 \text{ tCO}_2 \text{ e}$$

The GHG emission reductions calculated over the seven years of renewable

	<p>crediting period are estimated ex-ante as 151,431 tCO<sub>2</sub>e/4/.</p> <p>It is confirmed by the DOE by cross-checking the ER calculation sheet/4/ against all referenced data sources and the requirements of applied methodology and methodological tools that:</p> <ul style="list-style-type: none"> <li>➤ All data sources and assumptions used are listed and referenced in the PDD/4/ and are appropriate. Calculations are correct, applicable to the proposed CDM project activity and will result in a conservative estimation of the emission reductions;</li> <li>➤ All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD/4/;</li> <li>➤ All values used in the PDD are considered reasonable in the context of the proposed CDM project activity;</li> <li>➤ The baseline methodology has been applied correctly to calculate project emissions, baseline emissions and leakage and emission reductions;</li> <li>➤ All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD/4/. The approach of GHG emission reduction calculation is conservative and consistent throughout the PDD/4/ and crediting period.</li> </ul>
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#### D.4.8. Monitoring plan

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether the description of the monitoring plan included in the PDD complies with the approved monitoring methodology including applicable tools and, where applicable, the "Standard for sampling and surveys for CDM project activities and programme of activities; confirmed whether the PPs have chosen to delay the submission of the monitoring plan for the proposed CDM project activity.
<b>Findings</b>	Two CAR's (CAR 06 and 07) are raised in this section.
<b>Conclusion</b>	<p>The project activity applies the monitoring methodology AMS-I.D ver. 18/2/ which is the latest applicable version of the methodology. As per the applied methodology of the monitoring methodology, the following parameters have to be monitored during the crediting period for the calculation of the emission reduction by the project activity,</p> <ul style="list-style-type: none"> <li>➤ CO<sub>2</sub> Emission Factor of the grid electricity in the year y (fixed ex-ante)</li> <li>➤ Quantity of net electricity supplied to the grid year y</li> </ul> <p>The determination of the grid emission factor has already been discussed in the above section D 8.7 and ex-ante method has been selected by the PP.</p> <p>Since, the project applies monitoring methodology AMS-I.D ver. 18.0/2/ "Grid connected renewable electricity generation" and as per the methodology, monitoring shall consist of metering the quantity of net electricity generation supplied by the project plant/unit to the grid by the renewable technology installed by the project proponent.</p> <p>The monitored parameter <math>EG_{PJ, facility, y}</math> i.e. Quantity of net electricity generation supplied by the project plant/unit to the grid (MWh/year) is measured by two energy meters at the interface points/24/. The procedures for metering are as per the provisions of power purchase agreement (PPA)/18/ signed.</p> <p>The procedure to monitor the net electricity generation supplied by the project plant/unit to the grid is explained in section B.7 of the PDD/4/ and was assessed to be appropriate and correct and acceptable to the validation team. All the monitored data will be archived electronically for a period of 2 years after the crediting period.</p> <p>Accuracy, calibration, periodical testing and maintenance procedures of monitoring equipment are clearly mentioned in Section B.7.1 of the PDD/4/. The validation team has reviewed the same and is convinced that the same is adequate and will lead to the correct measurement of the net electricity exported to the grid. Also, the monthly Joint Energy meter reading reports is used for commercial purpose and is</p>



	<p>authentic and correct.</p> <p>The validation team hereby confirms that the project participant is able to implement the monitoring plan as described above in accordance with the applied monitoring methodology.</p> <p>The PDD confirms that all the monitored data will be archived for a period of 2 years after the crediting period or last issuance whichever is later. The monitoring plan includes the internal quality control and assurance process, data control system and regular calibration of the monitoring instruments as appropriate that will ensure reliable monitoring and reporting of the emission reductions.</p>
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#### D.5. Start date, crediting period type and duration

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether the PPs defined the Start date of the proposed CDM project activity, expected operational lifetime; type and duration of the crediting period and start date of the crediting period of the proposed CDM project activity in accordance with relevant requirements in the Project standard.
<b>Findings</b>	One CAR (CAR02) is raised in this section.
<b>Conclusion</b>	<p>As described in section C of the PDD/4/, the start date of the project is the date (12/08/2015) when the Letter of Award/20/ issued to Sterling and Wilson for development of the project (the earliest among the Karnataka and Tamil Nadu sites) by the PP. The start date is determined as per Glossary of CDM terms/28/.</p> <p>The expected Lifetime of the project activity is 25 years as guaranteed by the equipment supplier/12/.</p> <p>The crediting period chosen is a seven years renewable crediting period starting from the date of registration of the project under UNFCCC. Start date of the crediting period chosen is correct, realistic and appropriate.</p>

#### D.6. Environmental impacts

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether the PPs conducted an analysis of the environmental impacts of the proposed CDM project activity including transboundary impacts, and whether those impacts are considered significant by them.
<b>Findings</b>	No CAR/CL is raised in this section.
<b>Conclusion</b>	<p>The project activity is expected to have positive impacts and no significant adverse environmental impact due to project activity is foreseen since the proposed project is a renewable energy (solar energy) project with no project emissions. There is no mandatory legal requirement for carrying out EIA for solar power projects, which was verified by means of circular No. J-11013/41/2006-IA.II(I) dated 13<sup>th</sup> May, 2011 "Applicability of environmental clearance for Solar Photo Voltaic (PV) Power Projects", by Government of India, Ministry of Environment and Forests which exempts solar projects under the ambit of EIA notification dated 14 September 2006 and its amendment notification S.O.-3067(E) dated 01/12/2009, of MoEF. However, the validation team has verified all the clearances like statutory clearances/25/,/26/, No Objection Certificates/11/ and Power Purchase Agreements/18/.</p> <p>The validation team confirms that all the clearances obtained are in accordance with the procedures required by the host party. The validation team concludes that the environmental impact by the project activity is been assessed by the project proponent and the same is stated in the PDD/4/. To confirm the impact associated with the project proponent, the validation team conducted a physical inspection during the on-site visit and interviewed relevant stakeholders.</p>

#### D.7. Local stakeholder consultation

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether the PPs
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	completed a local stakeholder consultation process and that due steps were taken to engage stakeholders and solicit comments for the proposed CDM project activity.
<b>Findings</b>	One CL (CL03) is raised in this section.
<b>Conclusion</b>	<p>The validation team considers that the local stakeholder consultation was carried out adequately.</p> <p>Local Stakeholders process/14/ was carried out by the project proponent on 22/12/2016 for Karnataka site at solar power project site, Survey no. 55 Neralekunte village, Pavagada taluka, Tumkur district and on 05/01/2017 for Tamil Nadu site at Perunali village, Kamuthi taluka, Ramnathpuram district which was before the publication of PDD, for GSCP, on the UNFCCC website.</p> <p>For the Karnataka site - The local stakeholders were invited through appeals in local newspapers namely (Deccan Herald, dated 08/12/2016 in English and in Kannada Newspaper "Praja Vani" in regional language, dated 08/12/2016). Public notice were also displayed at primary school building and invite were also extended through personal invitation letters.</p> <p>For the Tamil Nadu site - The local stakeholders were invited through appeals in local newspapers namely (Indian Express, dated 15/12/2016 in English and in Tamil Newspaper "Dinamani" in regional language, dated 15/12/2016). Public notices were also displayed at local Panchayat office and invite were also extended through personal invitation letters.</p> <p>People from the local communities, farmers, teachers, Panchayat members attended the local stakeholders meeting. Stakeholders were directly asked to comment on the project through an open meeting among local stakeholders. A summary of the comments received and a note on how due account was taken of the concerns raised in the above public consultation are included in section E of the PDD. From the background of the stakeholders, it was reasonably believed that the general attitude of the local residents, who were likely to be affected by the project, was positive towards the project.</p> <p>During the on-site visit, representatives from the local community were interviewed. In general, the interviewees showed adequate understanding of the nature of the project and felt that there would be no adverse impacts on the environment arising from the project activity.</p> <p>The validation team confirms that the process for conducting the local stakeholders meeting is adequate and credible.</p> <p>The local stakeholder consultation process/15/ was carried out after the start date of the project activity (12/08/2015) but before the GSCP publication of the PDD and the specific requirement to conduct the LSH process before the start date of the project was listed in PS version 9.0 that came into force from 01/04/2015. The PP had obtained exemption to the requirement in para 78 (<i>Project participants or the coordinating/managing entity shall complete the local stakeholder consultation process before the start date of the project activity, PoA or CPA, as defined in the "Glossary of CDM terms" and submitting the PDD or PoA-DD of the proposed CDM project activity or PoA to a DOE for validation</i>) of the CDM Project standard PS, version 9.0, from UNFCCC vide reference: INQ-06074 on 13<sup>th</sup> March 2017/34/. The same directive from UNFCCC has asked the PP to conduct the local stakeholder consultation process before the GSCP publication of the PDD, which the PP had complied.</p> <p>Hence the validation team has concluded that PPs completed a local stakeholder consultation process/14/ in line with requirement of VVS version 2.0.</p>

#### D.8. Sustainable development co-benefits

<b>Means of validation</b>	NA
<b>Findings</b>	NA
<b>Conclusion</b>	NA

**D.9. Approval**

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether the (DNA) of the host Party indicated, as being involved in the proposed CDM project activity, has provided a written letter of approval.
<b>Findings</b>	One CL (CL01) is raised in this section.
<b>Conclusion</b>	<p>The National Clean Development Mechanism Authority (NCDMA), Ministry of Environment, Forest and Climate Change (MoEF), Government of India, is the Designated National Authority (DNA). The Designated National Authority has issued the letter of approval (LoA)/22/ (Reference No. 13008/81/2017-CCC) to the project activity dated 15<sup>th</sup> April 2019 and its amendment dated 21<sup>st</sup> Oct 2019 with same ref no. The authenticity of the copy of the LoA/22/ provided by PP was verified by checking it against the original copy.</p> <ul style="list-style-type: none"> <li>• The party (India) is a party to the Kyoto Protocol and party has ratified the Kyoto protocol in August 2002;</li> <li>• Participation of PP in the proposed project activity is voluntary in nature</li> <li>• The project under validation will assist in sustainable development in India</li> <li>• The project title is in line with the title mentioned in the PDD/2/</li> <li>• It refers to the precise proposed CDM project activity title “Bundled Solar Power Project by Emami Power Limited” in the PDD/4/ being submitted for registration.</li> </ul> <p>Further, the participation requirements were validated based on confirmation of the following:</p> <ul style="list-style-type: none"> <li>• The project participant listed in the tabular form in Section A.4 of PDD/4/ and the contact details provided in Annex 1 of the PDD/4/ is consistent and precise.</li> <li>• Participation of the PP has been approved by the DNA, as confirmed in the letter of approval.</li> <li>• No entities other than those approved as project participants are included in relevant sections of PDD/4/.</li> <li>✓ The LoA/3/ does not contain any conditional clause as regards to the above elements and it also does not refer to any specific version of the validation report.</li> <li>✓ The LoA/3/ has been verified to be unconditional with respect to all the above confirmed aspects.</li> </ul> <p>As mentioned above, the project received LoA/22/ on 15<sup>th</sup> April 2019, specifying the names of the two PPs 1) Emami Power Limited and 2) Emami Cement Limited. Later on Emami Cement Ltd. got demerged in Emami Power Ltd. under the order of National Company Law Tribunal (NCLT) dated 17th December 2018/21/, and it ceased to be the PP. Consequent of this change, updated HCA was obtained on 21<sup>st</sup> October, 2019 approving the change in project proponent, and the HCA letter conformed that previously issued HCA is valid only for the entity Emami Power limited/22/. The validation team received the letter of approval directly from the project participant and accepted it.</p>

**D.10. Authorization**

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether the project participant of the proposed CDM project activity or PoA has been authorized by at least one Party involved in a letter of approval.
<b>Findings</b>	One CL (CL01) is raised in this section.
<b>Conclusion</b>	Refer section D.9 of this report above

**D.11. Modalities of communication**

<b>Means of validation</b>	As per VVS version 2.0, the validation team has checked the corporate identity of all PPs, and focal points included in the MoC statement, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories and has checked that the MoC statement has been correctly completed and duly authorized.
<b>Findings</b>	One CL (CL01) is raised in this section.

<b>Conclusion</b>	A statement of Modalities of Communication (MOC)/7/ with the EB and UNFCCC secretariat had been provided to the validation team, directly by the PP. The signatures and details of the signatory in the MOC were validated from the certificate of registration/19/,/32/. Thus the validation team confirmed that the authorized signatory of PP has signed the MOC form and Annex 1 of MOC form and further found that name of the authorized signatory is included in Annex 1 of PDD/4/. The MOC/7/ is found to be appropriate as it clearly defined the responsible party for communicating with EB and UNFCCC regarding the issuance of CER of the proposed CDM project and applies the latest version of the form (CDM-MOC-FORM - Modalities of communication statement) (version 3.0). Thus the validation team confirms the authenticity of the MOC/7/. All sections of the MOC are verified and found to be filled in accordance with the latest and active version of "Guidelines for completing the MoC form" version 7.0
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#### D.12. Global stakeholder consultation

<b>Means of validation</b>	As per VVS version 2.0, the validation team has determined whether authentic and relevant comments in the global stakeholder consultation were taken into due account in the PDD of the proposed CDM project activity.
<b>Findings</b>	No CAR/CL was raised in this section
<b>Conclusion</b>	EPIC has made the version 1.0 of the PDD/4/ publicly available for 30 days for global stakeholder comments on 15/03/2017 through its dedicated interface on the UNFCCC CDM website/5/ before undertaking the site visit on 26 <sup>th</sup> to 27 <sup>th</sup> July 2017. The validation team has confirmed that there was no comment received during this period.

#### SECTION E. Internal quality control

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After the completion of assessment by the validation team all the relevant documentation is submitted to a qualified, Independent Technical reviewer as part of EPIC' internal quality control system. A Technical reviewer team is appointed to review the draft final validation report (Draft FVR). The comments made by the Technical reviewer team are taken into consideration and incorporated in the final FVR. The technical reviewer team assesses whether all the reporting requirements have been fulfilled and whether all the issues raised were closed satisfactorily by the validation team with justification. The technical review process can also raise issues in this regard which is resolved further by the validation team to the satisfaction of the technical reviewer. The technical reviewer team either accepts or rejects the report made by the validation team. The final report (after resolutions of all findings) is then submitted to the Head-operations for review and approval.

#### SECTION F. Validation opinion

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Emami Power had engaged EPIC Sustainability Services Private Limited to perform validation of the "Bundled Solar Power Project by Emami Power Limited" The Solar power project activity is renewable energy based power project. The electricity generated by the project activity is being supplied to the Indian National Grid. The same has been checked through the PPA/18/ of the project activity. Thus the project aims at reducing GHG emissions by replacing the same amount of electricity from the National grid which would otherwise be generated by a fossil fuel based power plants.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to the Kyoto Protocol, the CDM rules and modalities as agreed in the Bonn Agreement, the Marrakech Accords and the CDM Executive Board's decisions.

The purpose of a validation is to have an independent third party assessment of the project design, applicability of the project under the methodology AMS-I.D version 18.0/2/, baseline of the project, additionality, monitoring plan, emission reduction calculation etc and the project's compliance with relevant UNFCCC and host country criteria. The validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs). The validation team has employed a risk-based approach in the validation based on the recommendations in the Validation and Verification Standard version 2.0 (VVS/1/), focusing on the identification of significant risks for project implementation and the generation of CERs.

In summary, it is opinion of EPIC that the project titled “Bundled Solar Power Project by Emami Power Limited” as described in as described in the final PDD/4/ meets all relevant UNFCCC requirements for the CDM is eligible as small scale CDM project activities and correctly applies the respective baseline and monitoring methodologies. As such, EPIC recommends the registration of the project as a CDM project activity.

## Appendix 1. Abbreviations

Abbreviations	Full texts
AC	Alternate Current
BE	Baseline Emissions
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CL	Clarification Request
CM	Combined Margin
CO <sub>2</sub>	Carbon dioxide
CO <sub>2e</sub>	Carbon dioxide equivalent
DC	Direct Current
DNA	Designated National Authority
EB	CDM Executive Board
EF	Emission Factor
EIA	Environmental Impact Assessment
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GSC	Global Stakeholder Consultation
kW	Kilo Watt
LoA	Letter of Approval
LE	Leakage Emissions
LSC	Local Stakeholder Consultation
MoC	Modalities of Communication
MP	Monitoring Plan
MW	Mega Watt
OP	Operating Margin
PCP	Project Cycle Procedure
PE	Project Emissions
PDD	Project Design Document
PPA	Power Purchase Agreement
PS	Project Standard
QA/QC	Quality control/Quality assurance
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

## Appendix 2. Competence of team members and technical reviewers

The following validation team has been assigned to carry out the validation of the project.

<b>Name</b>	<b>Mr. A. Prabu Das</b>	<b>Dr G. Vishnu</b>	<b>Mr. R. Vijayaraghavan</b>
<b>Role</b>	Lead Auditor	Auditor	Technical Reviewer
<b>Competence in the TA</b>	TA 1.2 Renewables	Sector 1 including TA 1.2	TA 1.2 Renewables
<b>Responsibility*</b>	Doc review, Interview, DVR preparation, DVR resolution, FVR preparation	Interview with PP, local stakeholders, Doc review	Technical review

A brief summary of the personnel involved in the validation is indicated below.

**Mr. A Prabu Das**, holds a M. Tech Degree in Energy Conservation and Management and B. Tech Degree in Petro-chemical Technology. He is a certified Energy Auditor by Bureau of Energy Efficiency (BEE), Government of India. He has around 8 years of work experience in Design of biomass Power plants, preparing Techno Economic Feasibility Reports (TEFR), carrying out energy audits, of which last six years have been in CDM consultancy and validation services. He has undergone extensive training on CDM validation and verification and is a qualified as Lead Auditor for technical areas TA 1.1, TA 1.2 and TA 13.1 in accordance with procedures of EPIC. He is also an ISO 26000 lead auditor certified by Professional Evaluation and Certification Board (PECB).

**Mr. R. Vijayaraghavan** holds BE in Mechanical Engineering, M. Tech in Energy Conservation and Management and MBA in Technology Management. He is certified as Energy Auditor by Bureau of Energy Efficiency (BEE), Government of India. He has 13 years of working experience in energy sector including validation / verification of CDM, VCS and GS projects. He has undergone extensive training on CDM validation and verification and has been qualified as Lead Auditor for TA 1.2.

## Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	UNFCCC	Validation and Verification Standard for project activities, version 2.0 Project Standard for project activities, version 2.0 Project Cycle Procedure for project activities, version 2.0	1	Publicly available
2	UNFCCC	Methodology : "Grid connected renewable electricity generation" AMS.I.D Version 18 <a href="https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTXFQQOFQQH4SBK">https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTXFQQOFQQH4SBK</a>	2	Publicly available
3	PP	Initial PDD and CER sheet version 1.0	3	PP
4	PP	Final PDD version 10.0 and CER sheet version 4.0	4	PP
5	UNFCCC	UNFCCC project website <a href="https://cdm.unfccc.int/Projects/Validation/DB/VW0XJ0MWGHE6HYDVUQK0JS4NN8L492/view.html">https://cdm.unfccc.int/Projects/Validation/DB/VW0XJ0MWGHE6HYDVUQK0JS4NN8L492/view.html</a>	5	Publicly available
6	Land owners and PP	Land documents	6	PP
7	PP	MOC form template version 3.0 Guidelines for completing the MoC form version 3.0	7	PP
8	UNFCCC	PDD - Project Design Document form version 11.0	8	Publicly available
9	SWPL & PP	Agreement with SWPL 3.0 MW (TN) and 10.0 MW (Karnataka)	9	PP
10	UNFCCC	Tool to calculate the emission factor for an electricity system, version 7.0	10	Publicly available
11	KREDL and TANGED CO	LoA by KREDL for 10.0 MW (Karnataka) and LoA by TANGEDCO for 3.0 MW (TN)	11	PP
12	Equipment manufacturer's/suppliers	Solar Panels, Inverters – Technical Specifications Technical lifetime, Power degradation, Limited Warranty	12	PP
13	Rudraksh Energy	Detailed Project Report for both the sub projects	13	PP
14	PP	Local stakeholder consultation documents	14	PP
15	PP	Prior consideration intimation to UNFCCC and DNA	15	PP
16	PP	Consent for Establishment	16	PP
17	PP	Evidence that no ODA is involved in the project	17	PP
18	CESC &PP, TANGED CO&PP	Power Purchase Agreements for both the sub projects	18	PP
19	Ministry of Corporate Affairs, Govt of India	Certificate of Incorporation, Articles of Association, Memorandum of Association Certificate for Commencement of Business	19	PP
20	PP	LoA to Sterling & Wilson for both the sub projects and its amendment	20	PP



**CDM-VAL-FORM**

21	NCLT	Order of National Company Law Tribunal (NCLT) for the demerger of Emami Cement Ltd in Emami Power Ltd.	21	PP
22	NCDMA	HCA from NCDMA dated 15/04/2019 and its amendment dated 21/10/2019	22	PP
23	KPTCL and TANGED CO	Commissioning certificate for both the sub projects	23	PP
24	SWPL	Single Line diagram for both the sub projects	24	PP
25	Gram Panchayat	Gram Panchayat approval for both the sub projects	25	PP
26	CEIG	Electrical Inspectorate approval from Chief Electrical Inspector to Government (CEIG) for both the sub projects	26	PP
27	UNFCCC	Tool 21 "Demonstration of additionality of small-scale project activities", version 13.0	27	Publicly available
28	UNFCCC	Glossary of CDM Terms, version 10.0	28	Publicly available
29	CEA	CEA database version 15.0	29	Publicly available
30	PP	Bundling Form	30	PP
31	PP	Request for Proposal for both the sub projects	31	PP
32	PP	Focal point authorisation	32	PP
33	UNFCCC	Guidelines for the reporting and validation of plant load factors, Annex 11 of EB 48	33	Publicly available
34	UNFCCC	Exemption to the requirement in para 78 of the CDM Project standard PS, version 9.0, from UNFCCC vide reference: INQ-06074 on 13 <sup>th</sup> March 2017	34	Publicly available

## Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CLs from this validation

CL ID	01	Section no.	D.3	Date:	21/06/2017
<b>Description of CL</b>					
<p>Following documents are not submitted for assessment:-</p> <ul style="list-style-type: none"> <li>• HCA letter</li> <li>• ODA undertaking letter</li> <li>• MoC Form</li> <li>• Authorization letter for the signatory in the MoC</li> <li>• NOC from local panchayat body</li> <li>• NOC from electricity board</li> <li>• Bundling Form (<b>F-CDM-SSC-BUN</b>)</li> <li>• 'Request for proposal' and 'LOA issued to Sterling &amp; Wilson' for both the sub-projects</li> <li>• Evidence for the latitude and longitude of the project</li> </ul>					
<b>Project participant response</b>					<b>Date:</b> 18/07/2017
<b>PP response 1:</b>					
<p>Submitting herewith following documents as per requirement:</p> <p><b>HCA letter</b> – PP has applied for HCA letter, NCDMA i.e. MoEF, India has not yet scheduled meeting for the same. Once received from NCDMA, we will submit to DoE.</p> <p><b>ODA</b> – Submitting herewith signed copy of ODA undertaking letter for Emami Power Ltd. and Emami Cement Ltd.</p> <p><b>MoC Form</b> - Submitting herewith signed copy of MoC form.</p> <p><b>Authorisation letter</b> – Submitting herewith signed copy of authorisation letter by Emami Power Ltd. and Emami Cement Ltd.</p> <p><b>NOC from local Panchayat</b> – Submitting herewith NOC from local panchayat, Dommathamari, Nerulakunte village in Pavgada taluk of Karnataka State &amp; Perunali village in Kamuthi taluk of Tamilnadu.</p> <p><b>NOC for electricity board</b> - Submitting herewith NOC from respective electricity board – CEIG, Karnataka &amp; GEIG, Tamilnadu.</p> <p><b>Bundling form</b> – Submitting herewith dully filled bundling form (F-CDM-SSC-BUN)</p> <p><b>LOA issued to S &amp; W</b> – Submitting herewith scan copy of LOA issued to Sterling and Wilson for both the projects, LOA issued on 12/08/2015 &amp; amended LoA issued on 26/08/2015 for Karnataka site &amp; 30/09/2015 for Tamilnadu site.</p> <p><b>Evidence for Latitude &amp; Longitude</b> – Latitude &amp; longitude mentioned as per the google map image. Submitting herewith copy of the same.</p>					
<b>PP response 2:</b>					
<ul style="list-style-type: none"> <li>• HCA dated October 21, 2019 is submitted</li> <li>• Revised MoC is submitted</li> </ul>					
<b>Documentation provided by project participant</b>					

- ODA declaration by EPL dated 30/06/2017
- ODA declaration by ECI dated 30/06/2017
- Signed MOC form dated 30/06/2017
- Authorisation letter by EPL dated 30/06/2017
- Authorisation letter by ECI dated 30/06/2017
- NOC from Perunali Village dated 06/11/2015
- NOC from Dommathamari, Nerulakunte villages dated 27/01/2016
- CEIG approval Tamilnadu site – Letter no. 097/SPP/CEIG/D3/SC/2015-2 dated 08/03/2016
- CEIG approval Karnataka site – Letter no. CEIG/ACEI/EI-2/AEI-2/37297/-303//15-16 dated 11/03/2016
- Duly filled bundling form
- LoA issued to S&W – KN site dated 12/08/2015 and amended LoA issued on 26/08/2015
- LoA issued to S&W – TN site dated 30/09/2015
- Google map image of Karnataka & Tamilnadu site

<b>DOE assessment</b>	<b>Date: 05/11/2019</b>
<b><u>DoE response 1:</u></b>	
<ol style="list-style-type: none"> <li>1. HCA letter to review upon receipt - <b>Open</b></li> <li>2. ODA declaration submitted for the two sub projects are reviewed and accepted – <b>Closed</b></li> <li>3. Valid version of the MoC FORM is not used - <b>Open</b></li> <li>4. Authorisation letters by the two individual sub projects viz 1) Emami Power Limited 2) Emami Cement Limited, authorising Emami Power Limited as the focal point is reviewed and accepted – <b>Closed</b></li> <li>5. NoC from the local body for both the projects are reviewed and accepted – <b>Closed</b></li> <li>6. Approvals from the respective electricity authority for both the projects are reviewed and accepted – <b>Closed</b></li> <li>7. Information contained in the bundling form is not as per the submitted valid version of the PDD- <b>Open</b></li> <li>8. Letter of Award (LoA) for development of both the projects are reviewed and accepted – <b>Closed</b></li> <li>9. Evidence submitted for Lat – Long is submitted, as it is as per the site visit observations accepted – <b>Closed</b></li> </ol>	
<b><u>DoE response 2:</u></b>	
<ol style="list-style-type: none"> <li>1. Host Country Approval for the project activity from NCDMA i.e. MoEF, India was received on April 15, 2019 (Certificate No.13008/81/2017-CC), containing the names of the two PPs 1) Emami Power Limited and 2) Emami Cement Limited. Later on Emami Cement Ltd. got demerged in Emami Power Ltd. under the order of National Company Law Tribunal (NCLT) dated 17th December 2018, consequent of this change, updated HCA was obtained on October 21, 2019 approving the change of project proponent – <b>Closed</b></li> <li>3. Submitted MoC using version 3.0 is correct – <b>Closed</b></li> <li>7. Filled in bundling form, ver 5.0 is reviewed and accepted– <b>Closed</b></li> </ol>	
<b><u>CL 01 Closed</u></b>	

<b>CL ID</b>	02	<b>Section no.</b>	D.3	<b>Date:</b> 21/06/2017
<b>Description of CL</b>				
Emami cement is also indicated as one of the PP, but Appendix 1 of the PDD does not provide details as required				
<b>Project participant response</b>				<b>Date:</b> 18/07/2017
<b><u>PP response 1:</u></b>				
Necessary details now mentioned for Emami Cement Ltd. in Appendix 1 in the revised PDD.				
<b><u>PP response 2:</u></b>				
Updated PDD version 7.0 indicating the change in PP is submitted				
<b>Documentation provided by project participant</b>				

- Submitting herewith revised PDD (version 02 dated 18/07/2017)
- Updated PDD version 7.0 dated 30/10/2019

<b>DOE assessment</b>	<b>Date:</b> 05/11/2019
<b><u>DoE response 1:</u></b>	
PP to revisit the PDD on account of “Emami Cement Ltd. got demerged in Emami Power Ltd. under the order of National Company Law Tribunal (NCLT) dated 17th December 2018”	
<b><u>DoE response 2:</u></b>	
Submitted revised PDD is as per the changes in PP and is accepted.	
<b><u>CL 02 Closed</u></b>	

<b>CL ID</b>	03	<b>Section no.</b>	D.7	<b>Date:</b> 21/06/2017
<b>Description of CL</b>				
Following evidence related to LSC meet is not submitted				
<ul style="list-style-type: none"> <li>• Personal invitation letter for both the locations LSC meet as described in Sec E of the PDD</li> </ul>				
<b>Project participant response</b>				<b>Date:</b> 18/07/2017
<b><u>PP response 1:</u></b>				
Submitting herewith copy of personal invitation letter issued to local stakeholders for stakeholder consultation meeting conducted at Karnataka & Tamilnadu.				
<b>Documentation provided by project participant</b>				
Personal invitation letter for Karnataka site dated 08/12/2016 Personal invitation letter for Tamilnadu site dated 16/12/2016				
<b>DOE assessment</b>				<b>Date:</b> 05/11/2019
<b><u>DoE response 1:</u></b>				
Submitted personal invitation letters for both the sub-projects are reviewed and accepted				
<b><u>CL 03 Closed</u></b>				

<b>CL ID</b>	04	<b>Section no.</b>	D.4.7	<b>Date:</b> 21/06/2017
<b>Description of CL</b>				
PDD refers the electricity is supplied to the unified Indian Grid, but the submitted ER sheet refers southern grid, clarify				
<b>Project participant response</b>				<b>Date:</b> 18/07/2017
<b><u>PP response 1:</u></b>				
Necessary corrections done in Emission reduction excel sheet and submitting herewith revised ER sheet.				
<b>Documentation provided by project participant</b>				
Submitting herewith revised ER sheet to DoE for verification.				
<b>DOE assessment</b>				<b>Date:</b> 05/11/2019
<b><u>DoE response 1:</u></b>				
The grid information is corrected and made consistent across the PDD and the ER sheet.				
<b><u>CL 04 Closed</u></b>				

Table 2. CARs from this validation

<b>CAR ID</b>	01	<b>Section no.</b>	D.3	<b>Date:</b> 21/06/2017
<b>Description of CAR</b>				

De-bundling in Sec A.6 of the PDD is not adequately addressed. It's been observed that few projects in the same technology category by the same PP are CDM registered and/or in validation cycle (Eg: 1) UNFCCC ID 7791, and 2) "Renewable Power Project by Emami Power Ltd." etc). PP to transparently list all the projects by the PP and then assess the de-bundling as per the applied meth tool.

**Project participant response** **Date:** 18/07/2017

**PP response 1:**

Renewable power projects implemented by EMAMI under CDM is listed and is now mentioned in section A.6 of the revised PDD.

**Documentation provided by project participant**

Submitting herewith revised PDD (version 02 dated 18/07/2017)

**DOE assessment** **Date:** 22/07/2017

**DoE response 1:**

Revised PDD is reviewed to be transparently reporting all the projects by the PP and the conclusion that the subject project is not the de-bundled component of a larger project, is accepted.

**CAR 01 Closed**

**CAR ID** 02 **Section no.** D.5 **Date:** 21/06/2017

**Description of CAR**

Evidence for the start date of the project is not submitted for assessment. Further, in sec C.1.1 of the PDD the capacity mentioned for Karnataka site is wrong.

**Project participant response** **Date:** 18/07/2017

**PP response 1:**

LoA issued to sterling & Wilson (EPC contractor) for 10 MW solar power project in Karnataka dated 12/08/2015 is considered as start date of project activity. Submitting herewith scan copy of the same.

Project capacity mentioned in section C.1.1 for Karnataka site is now corrected.

**Documentation provided by project participant**

Submitting herewith revised PDD (version 02 dated 18/07/2017)

**DOE assessment** **Date:** 22/07/2017

**DoE response 1:**

Evidence for the start date is reviewed and accepted.

**CAR 02 Closed**

**CAR ID** 03 **Section no.** D.3 **Date:** 21/06/2017

**Description of CAR**

Technical specifications of the project equipment viz PV type, no of modules, technology, rating, make is not described in the PDD for both the sub-projects. PP is requested to submit the evidence related to that.

**Project participant response** **Date:** 18/07/2017

**PP response 1:**

Technical specifications of the project equipment viz PV modules, technology, inverter, transformer is now described in the revised PDD.

**PP response 2:**

The information is corrected in the revised PDD

**Documentation provided by project participant**

Submitting herewith revised PDD (version 02 dated 18/07/2017)

Submitting herewith technical datasheet for PV modules and inverter used in the implemented project activity.

**DOE assessment** **Date:** 05/11/2019

<p><b>DoE response 1:</b> The information provided in the PDD is not as per the evidence submitted for the equipment specifications</p> <p><b>DoE response 2:</b> Revised PDD is made consistent as per the evidence and accepted</p> <p><b>CAR 03 Closed</b></p>
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<b>CAR ID</b>	04	<b>Section no.</b>	D.4.1	<b>Date:</b> 21/06/2017
<b>Description of CAR</b>				
In sec B.2 of the PDD, the methodology eligibility conditions discussed are not as per the applied valid version of the meth AMS I-D (ver 18.0)				
<b>Project participant response</b>				<b>Date:</b> 18/07/2017
<p><b>PP response 1:</b> Eligibility conditions are updated as per meth AMS I-D (Version 18.0) in section B.2 of the revised PDD.</p> <p><b>PP response 2:</b> The information is corrected in the revised PDD</p>				
<b>Documentation provided by project participant</b>				
Submitting herewith revised PDD (version 02 dated 18/07/2017)				
<b>DOE assessment</b>				<b>Date:</b> 05/11/2019
<p><b>DoE response 1:</b> Not all the conditions are addressed.</p> <p><b>DoE response 2:</b> Revised PDD is found to be addressing all the eligibility conditions of the applied methodology AMS I-D (ver 18.0)</p>				
<b>CAR 04 Closed</b>				

<b>CAR ID</b>	05	<b>Section no.</b>	D.4.6	<b>Date:</b> 21/06/2017									
<b>Description of CAR</b>													
PP to demonstrate how the "GUIDELINES FOR THE REPORTING AND VALIDATION OF PLANT LOAD FACTORS" for the project activity is demonstrated.													
<b>Project participant response</b>				<b>Date:</b> 18/07/2017									
<p><b>PP response 1:</b></p> <p>As per PLF guidelines for the reporting and validation of plant load factor ( EB 48 Annex 11), the plant load factor can be validated by a third party contracted by project participant (e.g. as engineering company),</p> <p>In this implemented CDM project activity, DPR prepared by Rudraksh Energy (Division of Rudraksh Tradelinks Ltd.), R-15 A, Yudhisthir marg, C Scheme, Jaipur – 302001, Rajasthan (an third party engineering company contracted by Emami) for both the projects ,</p> <p>Plant load factor mentioned in the DPR are as below –</p> <table border="1" data-bbox="245 1585 1115 1686"> <thead> <tr> <th>State</th> <th>Capacity (MW)</th> <th>Plant Load Factor (%)</th> </tr> </thead> <tbody> <tr> <td>Karnataka</td> <td>10</td> <td>20.35%</td> </tr> <tr> <td>Tamilnadu</td> <td>3</td> <td>19.56%</td> </tr> </tbody> </table> <p>Estimated annual generation (5140 MWh/year considering PLF 19.56% for Tamilnadu site) &amp; (17827 MWh/year considering PLF 20.35% for Karnataka site) is considered for emission reduction calculation hence followed PLF guideline EB 48 Annex 11.</p> <p>Detailed Project Report (DPR) already submitted to DoE for verification.</p>					State	Capacity (MW)	Plant Load Factor (%)	Karnataka	10	20.35%	Tamilnadu	3	19.56%
State	Capacity (MW)	Plant Load Factor (%)											
Karnataka	10	20.35%											
Tamilnadu	3	19.56%											
<b>Documentation provided by project participant</b>													
Submitting herewith revised PDD (version 02 dated 18/07/2017)													
<b>DOE assessment</b>				<b>Date:</b> 05/11/2019									

<b>DoE response 1:</b> Demonstration of the PLF for the project activity is accepted, and the supporting evidences are reviewed
<b>CAR 05 Closed</b>

<b>CAR ID</b>	06	<b>Section no.</b>	D.4.8	<b>Date:</b> 21/06/2017
<b>Description of CAR</b>				
<ul style="list-style-type: none"> <li>Monitoring plan of the project is silent on specifications of the energy meters used for billing eg type, accuracy class, recording frequency etc.</li> <li>Submit the electricity generation report FORM B for the Karnataka site and the invoice copy for the electricity sale</li> <li>Calibration records</li> <li>Electrical line diagram</li> <li>Commissioning certificates</li> </ul>				
<b>Project participant response</b>				<b>Date:</b> 18/07/2017
<b>PP response 1:</b> Necessary details for billing meters are now mentioned in revised PDD. Submitting herewith electricity generation report (FORM B) and invoice copy for the Karnataka Site for last three months. Submitting herewith calibration record for billing meters at Karnataka & Tamilnadu site. Submitting herewith single line diagram for Karnataka & Tamilnadu site. Submitting herewith commissioning certificate for 10 MW Karnataka site & 3 MW Tamilnadu site. <b>PP response 2:</b> The information is corrected in the revised PDD				
<b>Documentation provided by project participant</b>				
Electricity generation report (FORM B) and invoice copy for the month of April, May & June'17. Main & check meter calibration record for Karnataka Site Main & check meter calibration record for Tamilnadu Site SLD Karnataka & Tamilnadu site. Commissioning certificate for 10 MW Solar Power Plant at Karnataka dated 30/03/2016 Commissioning certificate for 3 MW Solar Power Plant at Tamilnadu dated 18/03/2016				
<b>DOE assessment</b>				<b>Date:</b> 05/11/2019
<b>DoE response 1:</b> <ul style="list-style-type: none"> <li>Electricity meter details provided is incorrect</li> </ul> <b>DoE response 2:</b> Submitted revised PDD clearly present the monitoring information. The validation team has reviewed the FORM B and the electricity invoice copies, calibration records, electricity line diagram.				
<b>CAR 06 Closed</b>				

<b>CAR ID</b>	07	<b>Section no.</b>	D.4.8	<b>Date:</b> 21/06/2017
<b>Description of CAR</b>				
Data adjustment procedure in the event of MR date and billing date not coinciding is not detailed in the monitoring plan.				
<b>Project participant response</b>				<b>Date:</b> 18/07/2017
<b>PP response 1:</b>  Necessary details added in the revised PDD regarding procedure in the event of MR date and billing date not coinciding, in the monitoring plan.				
<b>Documentation provided by project participant</b>				
Submitting herewith revised PDD (version 02 dated 18/07/2017)				
<b>DOE assessment</b>				<b>Date:</b> 05/11/2019

<b><u>DoE response 1:</u></b> Data adjustment procedure detailed in the revised PDD is found to be accepted as it is inline with standard industry practice			
<b><u>CAR 07 Closed</u></b>			
<b>CAR ID</b>	08	<b>Section no.</b>	D.4.7
<b>Date:</b> 21/12/2019			
<b>Description of CAR</b>			
CEA database used is not the latest version			
<b>Project participant response</b>			<b>Date:</b> 26/03/2020
<b><u>PP response 1:</u></b>  Latest CEA database version 14.0 is now considered in the ER calculations			
<b><u>PP response 2:</u></b> Submission is revised as per version 15.0 of the database			
<b>Documentation provided by project participant</b>			
Submitting herewith revised PDD (version 10 dated 26/03/2020) and ER spreadsheet ver 4.0			
<b>DOE assessment</b>			<b>Date:</b> 26/03/2020
<b><u>DoE response 1:</u></b> PP to re-conform the submission, as version 14.0 is not the latest.			
<b><u>DoE response 2:</u></b> Emission reduction calculations is updated using valid version of CEA database (ver 15.0), the PDD and ER spreadsheet is reviewed to correct and accepted.			
<b><u>CAR 08 Closed</u></b>			

Table 3. FARs from this validation

<b>FAR ID</b>	NA	<b>Section no.</b>		<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>				
NA				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
NA				
<b>Documentation provided by project participant</b>				
NA				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY
NA				



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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
04.0	31 May 2019	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);</li> <li>• Make editorial improvements.</li> </ul>
03.1	11 January 2018	Editorial revision to remove an erroneously included instruction paragraph in section D.2 (Identification of project type).
03.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
02.0	22 July 2016	EB 90, Annex 3 Revision to include provisions related to automatically additional project activities.
01.0	23 March 2015	Initial publication.
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