




**Validation report form for renewal of CDM programme of activities period
(Version 02.0)**

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

BASIC INFORMATION

Title and UNFCCC reference number of the programme of activities (PoA)	6328: National Solar Power Development Programme, India
Number and duration of the next period	Second Crediting Period 06/06/2019 to 05/06/2026
Version number of the validation report	2.0
Completion date of the validation report	05/09/2019
Version number of PoA-DD to which this report applies	01.1
Coordinating/managing entity (CME)	Emergent Ventures India Pvt. Ltd. (EVI)
Host Parties	India
Applied methodologies and standardized baselines	AMS-I.D: Small-scale Methodology: Grid connected renewable electricity generation, Version 18.0
Mandatory sectoral scopes	Sectoral scope: 01; Energy industries (renewable - / non-renewable sources)
Conditional sectoral scopes, if applicable	NA
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next programme of activities period	-
Name and UNFCCC reference number of the DOE	Earthood Services Private Limited Ref No. E-0066
Name, position and signature of the approver of the validation report	 Dr. Kaviraj Singh Managing Director

SECTION A. Executive summary

The programme of activities involves installation of solar power plants at various locations within the project boundary. The PoA has been set up to convert renewable source of energy, solar light, to electricity through two types of technologies- Solar Photovoltaic and/or Concentrated Solar Power. Solar photovoltaic cells generate electricity when light strikes the semiconductor material within the cells thus knocking out electrons which generates an electric current. Whereas, Concentrated Solar Power (CSP) produce electric power by concentrating heat from solar radiations and using that heat to produce electricity by passing it through a conventional generator. Either or both of these technologies will be installed in this PoA.

All installations in this PoA will be grid-connected, thus replacing the carbon intensive fuel which would have otherwise been used in to produce electricity. This will lead to a reduction in the emissions from burning of coal, which is the key fuel used for generation of electricity in the host country.

The PoA is located in India and the solar plants will be installed in various parts of the country under different CPAs. All states of India are covered under the PoA.

The PoA is owned and implemented by the Emergent Ventures India Pvt. Ltd. (EVI).

Scope of Validation

The scope of the services provided by Earthood Services Private Limited for the project is to perform validation of the renewal of crediting period for the project activity. The scope of validation is to assess the claims and assumptions made in the registered Programme of activities design document (PoA-DD) against the UNFCCC criteria, including but not limited to, CDM PS, CDM VVS, applied methodology and other relevant rules and requirements established for CDM project activities.

Validation Process

The validation process is undertaken by validation team that involves the following:

- the desk review of documents and evidences submitted by the project participant in context of the reference CDM rules and guidelines issued by CDM EB,
- undertaking site visit, interview or interactions with the representative of the project participant,
- reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate and
- preparing a draft validation report for renewable of crediting period complying with the CDM requirements

An independent Technical Review team reviews the validation report prepared by validation team. The final validation report that is accepted by Technical Reviewer is then approved on behalf of Earthood Services Private Limited and processed further as per CDM procedures.

Conclusion

The review of the PoA-DD, supporting documentation and subsequent follow-up actions (onsite visit and interviews) has provided Earthood with sufficient evidence to determine the fulfilment of stated criteria.

Earthood is of the opinion that the project activity "National Solar Power Development Programme, India" as described in the final PoA-DD/6/ version 01.1 dated 04/09/2019 meets all relevant requirements of CDM, meets host country criteria and has correctly applied the methodology AMS-I.D: Small-scale Methodology: Grid connected renewable electricity generation, Version 18.0/8/. Therefore, the project is being recommended to CDM EB for request for its renewable of crediting period.

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	Interview(s)	Validation findings

CDM-PoA-RCPV-FORM

1.	Team Leader (old)*	IR	Mahala	Deepika	Central Office	Y	Y	Y	Y
2.	Team Leader (new)	IR	Garg	Shreya	Central Office	Y	N	N	Y
3.	Validator	IR	Guleria	Shifali	Central Office	Y	Y	Y	Y
4.	Methodology Expert	IR	Garg	Shreya	Central Office	Y	N	N	Y
5.	Technical Expert (old)*	IR	Mahala	Deepika	Central Office	Y	Y	Y	Y
6.	Technical Expert (new)	IR	Garg	Shreya	Central Office	Y	N	N	Y
7.	Local Expert	IR	Garg	Shreya	Central Office	Y	N	N	Y

*on-site visit was conducted by the old Team Leader

B.2. Technical reviewer and approver of the validation report for renewal of PoA period

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	Gautam	Ashok	Central Office
2.	Technical expert to TR	IR	Gautam	Ashok	Central Office
3.	Approver	IR	Singh	Kaviraj	Central Office

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

The validation for the renewal of crediting period of the registered PoA 6328: National Solar Power Development Programme, India is performed primarily as a document review of the draft project design document version 01 dated 27/06/2019 and subsequent versions (including final). The cross checks between information provided in the PoA-DD and information from sources other than those used, if available, the validation team's sectoral or local expertise and, if necessary, independent background investigations. The complete list of documents/evidences assessed by validation team is included under Appendix 3

C.2. On-site inspection

Duration of on-site inspection: 13/08/2019				
No.	Activity performed on-site	Site location	Date	Team member
1.	PoA description (including implementation and operation, project boundary, technology, project equipment, monitoring and metering equipment) as per PoA-DD	Emergent Ventures India, Gurugram, India	13/08/2019	Deepika Mahala, Shifali Guleria
2.	Applicability of applied methodology(ies) / tools		13/08/2019	Deepika Mahala, Shifali Guleria
3.	Project boundary and emission sources included in the project boundary.		13/08/2019	Deepika Mahala, Shifali Guleria
4.	Baseline validity, impact of national & sectoral policies.		13/08/2019	Deepika Mahala, Shifali Guleria
5.	Monitoring plan (validity and approach of ex-ante parameters and ex post parameters)		13/08/2019	Deepika Mahala, Shifali Guleria
6.	ER calculation approach		13/08/2019	Deepika Mahala, Shifali Guleria
7.	EIA requirements (host Party)		13/08/2019	Deepika Mahala, Shifali Guleria

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Aggarwal	Abhay	Emergent Ventures	13/08/2019	Monitoring plan with regards to ex-ante parameters, validity of baseline, applicability of methodology	Deepika Mahala, Shifali Guleria
2.	Sanghal	Atul	Emergent Ventures	13/08/2019	Monitoring plan with regards to ex-ante parameters, validity of baseline, applicability of methodology	Deepika Mahala, Shifali Guleria

C.4. Sampling approach**DOE Sampling Approach**

No sampling was conducted by the DOE as all CPAs are to be monitored individually.

CME Sampling Approach:

No sampling approach has been opted by the CME. All CPAs are to be individually monitored.

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

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Programme of activities			
Compliance with PoA-DD form	-	CAR#02	-
Programme of activities period	-	-	-
Coordinating/managing entity and the project participants	-	-	-
Post-registration changes	-	-	-
Generic component project activities	-	-	-
Application and selection of methodologies and standardized baselines	CL#01	-	-
Validity of original baseline or its update	-	CAR#03	-
Estimated emission reductions or net anthropogenic removals	CL#05	-	-
Validity of monitoring plan	CL#04, CL#05	-	-
Eligibility criteria for inclusion of CPAs	-	CAR#02	-
Others (please specify)	-	-	-
Total	3	2	0

SECTION D. Validation findings**D.1. Programme of activities****D.1.1. Compliance with PoA-DD form**

Means of validation	The PoA-DD form used is CDM-PoA-DD-FORM version 9.0/4/, which is the appropriate valid form, and the latest version available at the time of validation. All the sections of PoA-DD form were filled as per the guidelines and gave all the relevant details.
Findings	CAR#02 raised and resolved
Conclusion	The updated PoA-DD has been found to be completed using the valid version of the PoA-DD form. The information that is transferred in the current version of the

	PoA-DD /6/ is materially the same as that in the registered PoA-DD and in line with the para 391 of the VVS for PoA version 02/3/.
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D.1.2. Programme of activities period

Means of validation	The duration of registered PoA is 28 years starting from 21/10/2010 to 20/10/2038 and is renewable every 7 years /5/. The previous, first PoA crediting period spanned from 06/06/2012 to 05/06/2019 /9/. In accordance with para 390 a. (v) of VVS for PoA /3/, which states that the next PoA period commences on the day immediately after the expiration of the current PoA period, therefore new PoA period start date 06/06/2019 has been accepted for renewal of PoA period.
Findings	No findings
Conclusion	The updated PoA period in the updated PoA-DD/6/ has been found to be in line with VVS for PoA version 02 /3/ and PCP for PoA version 02 /2/.

D.1.3. Coordinating/managing entity and the project participants

Means of validation	The names of the CME in the new updated PoA-DD is Emergent Ventures India Private Limited (EVI) which was found to be in line with the latest MoC/9/, letter of approval by the DNA of India /20/ and with registered PoA-DD for previous crediting period /5/.
Findings	No findings.
Conclusion	The names of the project participants in the new updated PoA-DD/6/ are consistent with the names of the project participant in the latest version of MoC/7/, Letter of approval /20/ and the registered PoA-DD/5/.

D.1.4. Post-registration changes

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Corrections	N	NA	NA
Inclusion of monitoring plan	N	NA	
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	N	NA	NA
Changes to the programme design	N	NA	NA
Addition of CPA inclusion template	N	NA	NA
Changes specific to afforestation and reforestation activities	N	NA	NA
Change of coordinating/managing entity	N	NA	NA

No post registration changes have been requested at the time of request for renewal of crediting period.

D.2. Generic component project activities**D.2.1. Application and selection of methodologies and standardized baselines**

Means of validation	The applicability condition of the methodology AMS-I.D, Version-18 is presented as follows:		
	Applicability conditions	Justification by the Project proponent	Means of validation
	This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal, and renewable biomass:	The CPA(s) under the PoA will consist of only solar energy based generation units (i.e photovoltaic or solar thermal) and the generated power will be exported either directly to the national or to an	The applicability condition has been listed in section I.2 of PoA-DD and also been included as an eligibility criteria (criteria #5 in section K) and will be checked at the time of CPA inclusion using power purchase

	<p>(a) Supplying electricity to the national grid.</p> <p>(b) Supplying electricity to an identified consumer facility via national grid through a contractual agreement such as wheeling.</p>	identified consumer via national grid system	<p>agreements, project commissioning certificates, purchase order copies, technology specifications and other relevant documents as supporting evidence. Only if a CPA is found to be consisting of solar energy based generation units which supply energy to/through national grid at the time of inclusion, the applicability condition has been included in section K of the generic CPA DD.</p>
	<p>Illustration of respective situations under which the methodology applies</p> <ol style="list-style-type: none"> 1. Project supplies electricity to national grid 2. Project supplies electricity to an identified consumer facility via national grid through a contractual agreement such as wheeling. 	<p>The power generated by the CPA(s) under the PoA will be supplied to national grid or to an identified consumer via national grid. This confirms to point (1) & (3) of the table.</p>	<p>The applicability condition has been included as an eligibility criteria (criteria #5 in section K) and shall be checked at the time of CPA inclusion using power purchase agreements, project commissioning certificates, purchase order copies and other relevant documents as supporting evidence. If CPA is found to be consisting of solar energy based generation units which supply energy to only national grid or to an identified consumer via national grid at the time of inclusion, the applicability condition has been included in section K of the generic CPA DD.</p>
	<p>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).</p>	<p>All CPA(s) under the PoA shall install new solar power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity i.e. Greenfield power plants.</p>	<p>The applicability condition has been included as an eligibility criteria (criteria #5 in section K) and shall be checked at the time of CPA inclusion using project commissioning certificates, purchase order copies and other relevant documents as supporting evidence. If CPA is found to be consisting of greenfield solar energy based generation units at the time of inclusion, the</p>

			applicability condition has been included in section K of the generic CPA DD.
	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"> • The project activity is implemented in an existing reservoir with no change in the volume of reservoir; • 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/m²; • 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/m². 	The CPA(s) under the PoA includes power generation by solar resource and not by hydro resource.	The applicability condition is only applicable to hydropower plants. Since the PoA includes only solar power plant, this applicability condition was found to be not applicable.
	If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15MW 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 15MW.	The CPA under the PoA shall not have any co-firing systems. However, in case of combination of renewable and non-renewable components (hybrid systems such as solar-natural gas, solar-diesel or other fossil fuel systems), the renewable component shall be less than 15MW capacity.	The applicability condition has been included as an eligibility criteria (criteria #5 in section K) and shall be checked at the time of CPA inclusion using project commissioning certificates, purchase order copies, technology specifications and other relevant documents as supporting evidence. Only if the CPA is not found to be consisting of either no co-firing system or only hybrid systems with capacity of renewable component less than 15MW the applicability condition has been included in section K of the generic CPA DD.

	Combined heat and power (co-generation) systems are not eligible under this category.	The CPA(s) under the PoA will involve only power generation system and no co-generation systems (i.e. heat and power) are involved.	The applicability condition has been included as an eligibility criteria (criteria #5 in section D.2.5) and can be checked at the time of CPA inclusion using project commissioning certificates, purchase order copies, technology specifications and other relevant documents as supporting evidence. If at the time of CPA inclusion CPA is found to consist of no co-generation system, the applicability condition has been included in section K of the generic CPA DD
	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.	All CPA(s) under the PoA shall install new solar power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity i.e. Greenfield power plants.	The CPAs under the PoA will consist of Greenfield projects only. Eligibility criteria #5 in section K, shall be checked at the time of CPA inclusion using project commissioning certificates, purchase order copies and other relevant documents as supporting evidence. Since, the CPAs shall install only greenfield power plants shall not involve any capacity addition to existing renewable power generation capacity, the condition is not be applicable.
	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	The CPA(s) under the PoA shall not include retrofitting or modification of an existing facility for renewable energy generation. Thus, the condition is not applicable.	The CPAs under the PoA will consist of Greenfield projects only. Eligibility criteria #5 in section K, shall be checked at the time of CPA inclusion using project commissioning certificates, purchase order copies and other relevant documents as supporting evidence. Since, the CPAs will not include any retrofit or replacement projects, the condition is not be applicable.
	In the case of landfill gas, waste gas, wastewater treatment and agro-	The CPA(s) under the PoA includes only solar power generation	The applicability condition is only applicable to landfill gas,

	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.	projects and not methane recovery, heat generation or cogeneration project activities. Thus, the condition is not applicable.	waste gas, wastewater treatment and agro-industries projects. Since the PoA includes only solar power plants, this applicability condition was found to be not applicable.
	In case biomass is sourced from dedicated plantations, the applicability criteria in the tool “Project emissions from cultivation of biomass” shall apply.	The CPA(s) under the PoA includes only solar power generation projects and not biomass project activities. Thus, the condition is not applicable.	Since the PoA includes only solar power plants which don't use any kind of biomass for electricity generation, this applicability condition was found to be not applicable.
Findings	CL#01 raised and resolved.		
Conclusion	The generic CPA-DD of the PoA was found to be in accordance with the applied methodology/8/ and the applicable requirements in the CDM project standard for PoA ver 2/1/.		

D.2.2. Validity of original baseline or its update

Means of validation	<p>Baseline scenario applicable to the project is in accordance with the applied methodology/8/. The baseline scenario as mentioned in section I.5 of the PoA-DD/6/ is electricity being delivered to grid that is generated by the operation of fossil-fuel dominated grid-connected power plants, which results in release of CO₂ into the atmosphere. This description of baseline scenario in PoA-DD/6/ was found to be in line with baseline scenario prescribed in the applied methodology/8/.</p> <p>The continuation of existing baseline was validated as per the Methodological Tool/12/ “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” version 03.0.1.</p> <p>Step 1: Assess the validity of the current baseline for the next crediting period <i>Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies</i></p> <p>The baseline scenario identified for Greenfield CPAs by the CME were found to be in accordance with applied methodology AMS.I.D/8/ and the registered PoA-DD/5/- electricity generated by grid connected, fossil fuel dominated power plants. Jawaharlal Nehru National Solar Mission (JNNSM) is one major policy in the sector of solar energy generation which was launched in 2010. Although policies have been implemented in the host country which have lead to growth in the solar power development in India, the targets to be achieved require continuous financial and policy-based support, as evident from revision document of National Solar Mission/18/ and India's NDCs/16/.</p> <p>The current baseline was found in compliance with the most recent relevant mandatory national and/or sectoral policies/15/,/16/, /18/ which have come in to effect</p>
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	<p>after the submission of the PoA for validation. This is in accordance with the Methodological Tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" version 03.0.1 /12/. Therefore, no update made in the current baseline by the CME was found acceptable by the validation team.</p> <p><i>Step 1.2 Assess the impact of circumstances:</i> India achieved One Nation- One Grid- One Frequency on 31/12/2013 which meant that India now has one grid supplying power to the whole country and absence of any regional grids/19/. However, the baseline scenario still remains the continuation of generation of electricity from fossil fuels supplied to the grid, hence the atmospheric release of the carbon emissions. As evident from the sectoral policies /15/, /16/, there have been no significant changes in market characteristics that is related with or/and has any impacts to electricity generation from solar power plants. Therefore the baseline has been found acceptable by the assessment team and the continuation of the current baseline was found applicable.</p> <p><i>Step 1.3 Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.</i> Since all CPAs that have been included or will be included in the PoA are greenfield projects (which is ensured at the time of CPA inclusion as a part of the eligibility criteria #3 regarding technology), this step is not applicable.</p> <p><i>Step 1.4: Assessment of the validity of the data and parameters</i> Since no data or parameter values are determined at the time of PoA-DD renewal, the baseline emissions will be determined at the time of CPA inclusion.</p> <p>Step 2: Update the current baseline and the data and parameters</p> <p><i>Step 2.1: Update the current baseline</i> The baseline established at the time of initial registration is applicable as per the applied version of the methodology and tools. Hence, no update in the current baseline was found acceptable by the validation team.</p> <p><i>Step 2.2: Update the data and parameters</i> Data/parameters and their values are determined at CPA level and hence the checks have been included in the PoA DD to aid their correctness at the time of CPA inclusion.</p>
Findings	CAR#03 raised and resolved.
Conclusion	The DOE has accepted and validated the original baseline for this monitoring period in the updated PoA-DD/6/. The baseline scenario is found to be valid in accordance with the applied methodology/8/, applied tool/12/ and para 382 of VVS for PoA version 02/3/.

D.2.3. Estimated emission reductions or net anthropogenic removals

Means of validation	<p><u>Baseline Emissions:</u> The baseline emissions from the PoA include CO₂ emissions generated due to electricity production from fossil fuel which would be displaced due to the CPAs of this PoA. As per para 22 of AMS.I.D Ver18/8/:</p> $BE_y = EG_{PJ,y} * EF_{grid,y}$ <p>Where:</p> <p>BE_y = Baseline Emissions in year y (t CO₂)</p> <p>$EG_{PJ,y}$ =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)</p>
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$EF_{grid, y}$ = Combined margin CO₂ 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” (tCO₂/MWh)”

In case of greenfield projects,

$$EG_{PJ, y} = EG_{PJ, facility, y}$$

Where:

$EG_{PJ, facility, y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh)

The emission factor will be calculated at the CPA level in line with the latest applied methodology AMS.I.D ver 18/8/ and “TOOL7: Tool to calculate the emission factor for an electricity system”/11/. In line with the tool, option (a) i.e. calculating combined margin according to procedures in “Tool to calculate the emission factor for an electricity system” has been chosen by the CME. Operating margin and Build Margin will be obtained from Central Electricity Authority database and Combined Margin will be calculated by the CME as an ex-ante parameter. CME has chosen to use the method of weighted average CM:

$$EF_{grid, CM, y} = EF_{grid, OM, y} \times w_{OM} + EF_{grid, BM, y} \times w_{BM}$$

Where:

$EF_{grid, BM, y}$ = Build margin CO₂ emission factor in year y (tCO₂/MWh)

$EF_{grid, OM, y}$ = Operating margin CO₂ emission factor in year y (tCO₂/MWh)

w_{OM} = Weighting of operating margin emissions factor (%)

w_{BM} = Weighting of build margin emissions factor (%)

Where, weights w_{OM} and w_{BM} , by default are $w_{OM} = 0.75$ and $w_{BM} = 0.25$ as confirmed from para 86(a) of “TOOL7: Tool to calculate the emission factor for an electricity system”/11/ and therefore accepted by the validation team for second crediting period.

Project Emissions:

In the cases where diesel or other fossil fuel generators are used as a part of hybrid technology for back-up or emergency requirements, PoA-DD includes provision to account for the project emissions resulting from these generators, which will be calculated as per “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion” version 03.0/10/:

$$PE_{FC, j, y} = \sum FC_{i, j, y} \times COEF_{i, y}$$

Where:

$PE_{FC, j, y}$ = Are the CO₂ emissions from fossil fuel combustion in process j during the year y (tCO₂/yr);

$FC_{i, j, y}$ = Is the quantity of fuel type i combusted in process j during the year y (mass or volume unit/yr);

$COEF_{i, y}$ = Is the CO₂ emission coefficient of fuel type i in year y (tCO₂/mass or volume unit)

i = Are the fuel types combusted in process j during the year y

The CME had two options to calculate the parameter ‘CO₂ emission coefficient’ $COEF_{i, y}$. The choice of the option has been narrowed to option B of the applied tool/10/ owing to the availability of the data. The monitoring plan/parameters have been sufficiently included to capture the parameters required for the calculation.

	<p>The choice of calculation is in accordance to the applied tool/10/. Therefore, the calculation of COEF_{i, y} using the following formula was found accepted by the DOE:</p> $\text{COEF}_{i, y} = \text{NCV}_{i, y} \times \text{EF}_{\text{CO}_2, i, y}$ <p>Where:</p> <p>COEF_{i, y} = CO₂ emission coefficient of fuel type i in year y (tCO₂/mass or volume unit)</p> <p>NCV_{i, y} = weighted average net calorific value of the fuel type i in year y (GJ/mass or volume unit)</p> <p>EF_{CO₂, i, y} = weighted average CO₂ emission factor of fuel type i in year y (tCO₂/GJ)</p> <p>i = fuel types combusted in process j during the year y</p> <p>Hence, the project emissions for the PoA can be calculated as follows:</p> $\text{PE}_{i, j, y} = \text{FC}_{i, j, y} * \text{NCV}_{i, y} * \text{EF}_{\text{CO}_2, i, y}$ <p>The calculation method for project emissions is in line with the applied methodology/8/ and other applied tools, and therefore found acceptable by the validating team.</p> <p><u>Leakage Emissions:</u></p> <p>Since the PoA has no leakage sources, leakage emissions are not considered in this PoA, which is in line with the applied methodology/8/.</p> <p><u>Emission Reductions:</u></p> $\text{ER}_y = \text{BE}_y - \text{PE}_y - \text{LE}_y$ <p>Where,</p> <p>ER_y = Emission Reductions in the yth year</p> <p>BE_y = Baseline Emissions in the yth year</p> <p>PE_y = Project Emissions in the yth year</p> <p>LE_y = Leakage in the yth year</p> <p>As per the applied methodology/8/, since PoA has no leakage sources, no Leakage emissions consideration has been found acceptable by the validation team. ERs thus are calculated as:</p> $\text{ER}_y = \text{BE}_y - \text{PE}_y$
Findings	CL#05 raised and resolved
Conclusion	The emission reductions or net anthropogenic GHG removals in the updated PoA-DD/6/ comply with the applicable requirements in the CDM project standard for programme of activities version 02/1/, the applied methodology AMS.I.D. version 18/8/ and all other applicable tools/10/, /11/.

D.2.4. Validity of monitoring plan

Means of validation	<p>The monitoring plan given in the updated PoA DD/06/ complies with the registered monitoring plan. The values of all ex-ante parameter and monitored parameters will be determined at the time of including CPAs. The assessment of these parameters is as follow:</p> <p><u>Ex-Ante Parameters</u></p> <table border="1"> <thead> <tr> <th>S.No</th><th>Parameter (Unit)</th><th>Value in updated PoA DD</th><th>Assessment</th></tr> </thead> <tbody> <tr> <td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>			S.No	Parameter (Unit)	Value in updated PoA DD	Assessment				
S.No	Parameter (Unit)	Value in updated PoA DD	Assessment								

	1.	Operating Margin emission factor of the national grid, $EF_{grid,OM,y}$ (tCO ₂ eq/MWh)	The value will be sourced from Central Electricity Authority (CEA) CO ₂ baseline database.	While applying the latest version of the methodology AMS.I.D version 18/8/, the source and choice of data or measurement methods and procedures for the parameter have not been changed during the renewal of PoA. The parameter is in line with the registered PoA-DD version 1.2/5/ of previous crediting period and applied methodology/8/. The value will be determined at the time of CPA inclusion from the latest data available.
	2.	Build Margin emission factor of the national grid, $EF_{grid,BM,y}$ (tCO ₂ eq/MWh)	The value will be sourced from Central Electricity Authority (CEA) CO ₂ baseline database.	While applying the latest version of the methodology AMS.I.D version 18/8/, the source and choice of data or measurement methods and procedures for the parameter have not been changed during the renewal of PoA. The parameter is in line with the registered PoA-DD version 1.2/5/ of previous crediting period and applied methodology/8/. The value will be determined at the time of CPA inclusion from the latest data available.
	3.	Combined Margin emission factor of the national grid, $EF_{grid,CM,y}$ (tCO ₂ eq/MWh)	The value will be calculated from Operating and the Build margin emission factor. Central Electricity Authority (CEA) CO ₂ baseline database.	While applying the latest version of the methodology AMS.I.D version 18/8/, the source and choice of data or measurement methods and procedures for the parameter have not been changed during the renewal of PoA. The parameter is in line with the registered PoA-DD version 1.2/5/ of previous crediting period and applied methodology/8/. The value will be determined at the time of CPA inclusion from the latest data available.
	Monitored Parameters:			
	Sno.	Parameter and Unit		Assessment
	1.	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y, $EG_{PJ, facility, y}$ (MWh)		The value for this parameter will be sourced from the energy meters and will be monitored continuously. The measurement method and recording frequency will be determined at the time CPA inclusion in accordance with the applied methodology AMS.I.D/8/.

	2.	Quantity of fuel type <i>i</i> combusted in process <i>j</i> during the year <i>y</i> , $FC_{i,j,y}$, (Mass or volume unit/yr)	This parameter will be measured on-site and will have a continuous monitoring frequency. The measurement method will be determined at the time CPA inclusion in accordance with the applied methodology AMS.I.D/8/ and Tool 03/10/.
	3.	Weighted average net calorific value of fuel type <i>i</i> in year <i>y</i> , $NCV_{i,y}$, GJ/mass or volume unit	The source, value, measurement methods and Monitoring frequency will be determined at the time CPA inclusion in accordance with the applied methodology AMS.I.D/8/ and Tool 03/10/.
	4.	Weighted average CO ₂ emission factor of fuel type <i>i</i> in year <i>y</i> , $EF_{CO_2,i,y}$, (tCO ₂ /GJ)	The source, measurement methods and Monitoring frequency will be determined at the time CPA inclusion in accordance with the applied methodology AMS.I.D/8/ and Tool 03/10/.
Findings	CL#04 and CL#05 raised and resolved		
Conclusion	The parameter fixed ex-ante and monitored, which are a part of the monitoring plan are in line with the registered PoA-DD/5/ of previous crediting period and applied methodologies/8/ and was found to be acceptable as per the VVS for PoA version 2/3/.		

D.2.5. Eligibility criteria for inclusion of CPAs

Means of validation	Eligibility criteria for inclusion of a CPA under this PoA – “Replacement CPAs”		
	Eligibility Criteria	Supporting Evidence by the CME	Means of validation
	1-The geographical boundary of the CPA including any time- induced boundary consistent with the geographical boundary set in the PoA	<p>The geographic boundary set for the PoA is India (host country). The CPA location is verified against this by the CME. The details of CPA location provided by the IE shall be crosschecked with one or more of the following documents by the CME at the time of inclusion to the PoA:</p> <ul style="list-style-type: none"> • Project Detailed Project Report • Land documents with clear definition of the project location • Geo co-ordinates of the project site using GPS device • EPC / Purchase Order / Letter of Intent with site location details • Any Statutory Approvals / clearance received for the project having the mention of project location details 	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined in accordance with the project standard for PoA, para 124(a)/1/. The geographical boundary of the CPA is India which is sufficiently verifiable at the CPA level using the documents listed by the CME.</p> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA/3/ and is therefore accepted by the validation team.</p>

	2.a. Conditions to avoid double counting of GHG emission reductions or net anthropogenic GHG removals, such as unique identifications of product and end user locations (e.g. programme logo);	The double counting of emission reduction occurs when the CPA part of the present PoA has been registered or has proposed to register under the Clean Development Mechanism of the UNFCCC or any other voluntary scheme for availing GHG emission reduction benefits. Should such a case occur, then the CME will not proceed with inclusion of the corresponding CPA under the proposed PoA. In order to avoid the same, the CME shall assign a Unique Identification Number to the CPA(s) and shall cross verify with the following documents / sources at the time of CPA inclusion to the PoA and submit one of the below to the DOE at the time of validation / verification:	The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined in accordance with the project standard for PoA, para 124(b)/1/. The double counting will be avoided and verified at CPA level by cross checking the unique identification number provided to project devices against the geo-coordinates/CME database/list of PoAs submitted for prior consideration for CDM or other documents as listed by the CME. The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA/3/ and is therefore accepted by the validation team.
	2.b. Conditions to confirm that CPAs are neither registered as CDM project activities, included in another registered PoAs, nor the project activities that have been deregistered;	<ul style="list-style-type: none"> • Project location with any of the documents mentioned in point (a) • Cross-checking of the CPA geo co-ordinates. • Comparing between the CME database and the list of project activities that have submitted prior consideration for CDM, that are under validation, registered, rejected or withdrawn available in the UNFCCC website • Undertaking from the CPA project developer. 	
	3- Specification of the technology/measure, such as the level and type of service, as well as performance specification based on, inter alia, testing/certification	<p>The technology / measure allowed under the PoA are either <i>Solar Photovoltaic's</i> or <i>Concentrated Solar Power</i> based generation systems. Export of generated power is allowed either directly to the national grid or to an identified consumer via national grid system.</p> <p>All CPA(s) under the PoA are allowed to install new solar power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity i.e. Greenfield power plants and does not include retrofitting or modification of an existing facility for renewable energy</p>	The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined in accordance with the project standard for PoA, para 124(a)/1/. The technology specifications of the CPA are sufficiently verifiable at the CPA level using the documents listed by the CME. The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA/3/ and is therefore accepted by the validation team.

		<p>generation. The CPAs under the PoA are not allowed to have any co-firing systems or cogeneration systems. However, in case of combination of renewable and non-renewable components (hybrid systems such as solar-natural gas, solar-diesel or other fossil fuel systems), allowed capacity under the renewable component is less than 15MW.</p> <p>To verify the same, the CME shall check the CPA technology adopted with the aid of one or more of the following documents:</p> <ul style="list-style-type: none"> • Project Detailed Project Report • Technology offer along with the specifications provided by the supplier / Tender form • Purchase Order copies • Power Purchase Agreement • Project Commissioning Certificate 	
	4- Conditions to check the start date of the CPA through documentary evidence;	<p>The commencement of validation of the PoA, i.e. the date on which the CDM-POA-DD was first published for global stakeholder consultation was on 06/09/2011.</p> <p>As per the “Glossary of CDM Terms, Version 09.1” which states that starting date as <i>“For a CDM project activity (non-A/R) or CPA (non-A/R), the date on which the project participants commit to making expenditures for the construction or modification of the main equipment or facility (e.g. a wind turbine), or for the provision or modification of a service (e.g. distribution of energy-efficient light bulbs, change of transport management system), for the CDM project activity or CPA. Where a contract is signed for such expenditures (e.g. for procurement of a wind turbine), it is the date on which the contract is signed. In other cases, it is the date on which such expenditures are incurred.</i></p>	<p>The eligibility criterion for inclusion of corresponding CPAs in the CDM PoA are defined in accordance with the project standard for PoA, para 124(a)/1/. The start date of the CPA will be considered as any date when the CME or project implementer has committed to expenditures related to the CPA implementation. This date is sufficiently verifiable at the CPA level from CPA EPC contract or any other purchase order for implementation of the CPA and is found acceptable as a supporting evidence by the validation team. The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA/3/.</p>

		<p><i>If the CDM project activity or CPA involves more than one of such contracts or incurred expenditures, it is the first of the respective dates. Activities incurring minor pre-project expenses (e.g. feasibility studies, preliminary surveys) are not considered in the determination of the start date."</i></p> <p>In light of the above definition, the start date shall be considered to be the date on which the CPA project participant has committed to expenditures related to the implementation or related to the construction of the CPA and should not be before the PoA webhosting date i.e. 06/09/2011.</p> <p>To verify the same, the CME shall check the date of CPA EPC contracting / Purchase Order placement by the IE. Further it is verified that these activities have happened after the commencement of PoA validation.</p>	
	5.a.- Conditions to ensure compliance with the applicability of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents;	<p>The PoA being only grid connected solar power projects shall be using the approved methodology - AMS.1.D version 18 or such later version as may be in force at the time of CPA inclusion. There shall be no multiple methodologies allowed under the PoA.</p> <p>The CME to verify the same shall take an undertaking from the CPA implementing entity at the time of inclusion to the PoA pertaining to above requirement.</p> <p>To verify the same, the CME shall also check one or more of the following documents:</p> <ul style="list-style-type: none"> • Project Detailed Project Report • EPC Contract / Letter of Intent • Comparing between the CME database and the list of project activities that have submitted prior consideration for CDM, that are under validation, 	<p>The eligibility criterion for inclusion of corresponding CPAs in the proposed CDM PoA are defined in accordance with the project standard for PoA, para 124(a)/1/. The methodology compliance and applicability conditions are ensured to be met by the CPA by verifying the documents mentioned in the revised PoA-DD/6/. All applicability conditions of the methodology were found to be sufficiently verifiable at the CPA level using the documents listed by the CME and therefore, has been found acceptable by the validation team. The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA/3/.</p>
	5.b.- Conditions to ensure the compliance with other requirements of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents		

		<p>registered, rejected or withdrawn available in the UNFCCC website</p> <ul style="list-style-type: none"> • Technology offer along with the specifications provided by the supplier / Tender form • Purchase Order copies • Power Purchase Agreement • Project Commissioning Certificate 	
	6- The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality	<p>The additionality of the PoA as a whole is demonstrated using Attachment A of Appendix B, Version 08, EB 63, Annex 24. Thus in accordance with the above ruling, at the time of CPA inclusion, the additionality of the SSC-CPA shall be evaluated on the basis that if the proposed CPA(s) meets the eligibility criteria of CDM-PoA-DD, the CPA(s) shall be deemed additional.</p>	<p>As per para 285 of PS for PoA version 2.0/1/, CME is not required to reassess or update the section of PoA-DD relating to additionality for renewal of PoA crediting period. No changes were found to made to the revised PoA-DD and the information related to additionality was found to be in line with the registered-PoA-DD/5/. To ensure that CPAs meet the additionality demonstration requirements, the CPA will be checked to be in line with ' Attachment A of Appendix B, Version 08, EB 63, Annex 24'/17/ at the time of CPA inclusion. This will ensure that CPAs are automatically additional. The conditions under Attachment A of appendix B/17/ were found to be covered under other eligibility criterias. Therefore, it was concluded that the provision under revised PoA-DD/6/ to accept CPA to be additional if other eligibility criterias are met, was found to be acceptable by the validation team. The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA/3/.</p>
	7- The PoA-specific requirements	As per the Ministry of Environment and Forest (MoEF), Govt of India Office	The eligibility criterion for inclusion of corresponding CPAs in

	including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;	<p>Memorandum dated 30/06/2011, it had received specific clarification regarding the applicability of EIA Notification, 2006 in respect of Solar Photo Voltaic (PV) and Solar Thermal Power plants. Further Office Memorandum dated 14/08/2017 is issued by Ministry of New and Renewable Energy, National Solar Mission Division. It was clarified in both the above memorandums that both Solar PV and Solar Thermal power projects are not covered under the ambit of EIA Notification, 2006 and no environment clearance is required for such projects under provisions thereof. The explanation of the same is provided in section E of the CDM-PoA-DD.</p> <p>However, the CPA implementing entity shall conduct the local stakeholder consultation meeting as per the CDM requirements at the time of inclusion to the PoA. The CME shall verify all the documents related to stakeholders consultation meeting viz. Meeting notice, advertisement, minutes, photographs, list of attendees etc to confirm the same.</p>	<p>the proposed CDM PoA are defined in accordance with the project standard for PoA, para 124(a)/1/. The local stakeholder consultations have been provisioned to be conducted at CPA level and conditions for meeting the eligibility criteria of the CPA are sufficiently verifiable at the CPA level using the documents listed by the CME i.e meeting notice, advertisement, minutes, photographs, list of attendees.</p> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA/3/ and is therefore accepted by the validation team.</p>
	8- Target group (e.g. domestic/commercial/industrial, rural/urban, grid connected/off-grid) and distribution mechanisms (e.g. direct installation);	<p>The CME shall allow only grid connected solar power projects under the PoA. In-line with the same the CME shall check the power purchase agreement or approval from concerned statutory body to ensure that the power generated from the CPA(s) is injected only to the grid system within the host country.</p>	<p>The eligibility criterion for inclusion of corresponding CPAs in the proposed CDM PoA are defined in accordance with the project standard for PoA, para 124(a)/1/. The target group of the CPA is sufficiently verifiable at the CPA level using the documents listed by the CME. The target group for each CPA will be national grid only, which will be verified at the time of CPA inclusion from power purchase agreement or approval from concerned statutory body.</p> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA</p>

			in the VVS for PoA/3/ and is therefore accepted by the validation team.
	<p>9- If the generic CPA applies sampling for the determination of parameter values for calculating GHG emission reductions or net anthropogenic GHG removals, conditions related to sampling requirements for the PoA in accordance with the "Standard: Sampling and surveys for CDM project activities and programme of activities"</p>	<p>In the proposed PoA, the CME opts for a verification method that does not use sampling but to verify each CPA.</p> <p>A monitoring plan is established such that each CPA under the PoA are monitored and verified effectively.</p> <p>The CME shall assign a Unique Identification Number to each CPA and further the CPA will be identified by its geographical coordinates. This will ensure that there occurs no double counting and that the status of verification can be checked at anytime.</p>	<p>The eligibility criterion for inclusion of corresponding CPAs in the proposed CDM PoA are defined in accordance with the project standard for PoA, para 124(a)/1/.</p> <p>Since, no sampling has been applied by the CME, this eligibility criteria is not found to be applicable.</p>
	<p>10- If the generic CPA is small-scale or microscale, conditions to ensure that CPAs that will be included meet the small-scale or microscale thresholds and remain within those thresholds throughout the crediting period of the CPAs. However, if the generic CPA consists solely of units that qualify as "microscale CDM units" as defined in the "Methodological tool: Demonstration of additionality of microscale project activities", these conditions are not required;</p>	<p>In the present PoA, since the CPA only below 15MW capacity are eligible, the CME shall use TOOL 21 Version 12 to demonstrate the additionality wherein the grid connected solar power projects upto 15 MW are additional as they fall under the <i>positive list of renewable electricity generation technologies</i>. Further as per the General Guidelines to SSC CDM methodologies the CME shall verify the eligibility and the output capacity of the CPA. By definition from the methodology, the CPA(s) being eligible for Type I projects shall not have the installed capacity to increase beyond 15 MW and the maximum output or appropriate equivalent capacity to be upto 15MW.</p> <p>However for using the micro scale additionality guidelines, as of now the Indian DNA has not approved which all renewable energy projects can use this guideline to demonstrate additionality.</p> <p>Hence as for now, the prominence is given to whether the SSC-CPA capacity is within 15MW capacity or above. To ensure the same, the CME shall verify the SSC-CPA</p>	<p>The eligibility criterion for inclusion of corresponding CPAs in the proposed CDM PoA are defined in accordance with the project standard for PoA, para 124(b)/1/.</p> <p>The 15MW threshold of the CPA can be verified at CPA level by checking the technology specifications, capacity allotment letter from any govt body, capacity mentioned in the PPA or any other relevant document as listed by the CME, at the time of CPA inclusion.</p> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA/3/ and is therefore accepted by the validation team.</p>

		capacity allotment letter from any govt body / capacity mentioned in the PPA / any other relevant document to see the individual SSC-CPA capacity is within the 15 MW limit throughout the crediting period.	
	11- If the generic CPA is small-scale or microscale, conditions for the debundling check based on the “Methodological tool: Assessment of debundling for small-scale project activities”. However, if the generic CPA consists solely of units that qualify as “microscale CDM units”, these conditions are not required.	<p>As per para 15 of the TOOL20 – Assessment of debundling for small-scale project activities, version 4, the CPAs under the PoA is deemed to be a de-bundled component of a large scale activity if there is already an activity, which satisfies both conditions (a) and (b) below:</p> <p style="padding-left: 40px;">a) <i>Has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same technology/measure , and;</i></p> <p style="padding-left: 40px;">b) <i>The boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point.</i></p> <p>Further as per Figure 2 of TOOL 20, version 4 a proposed CPA of a PoA is deemed to be debundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity:</p> <p style="padding-left: 40px;">a) <i>With the same project participants;</i></p> <p style="padding-left: 40px;">b) <i>In the same project category and technology/measure; and</i></p> <p style="padding-left: 40px;">c) <i>Registered within the previous 2 years; and</i></p> <p style="padding-left: 40px;">d) <i>Whose project boundary is within 1 km of the project boundary of the proposed small- scale activity at the closest point</i></p>	<p>The eligibility criterion for inclusion of corresponding CPAs in the proposed CDM PoA are defined in accordance with the project standard for PoA, para 124(b)/1/. The debundling conditions of the CPA can be verified at CPA level by checking that same CPA implementer has not implemented any other project activity within 1km radius of the CPA. This can be achieved by checking the documents listed by the CME, at the time of CPA inclusion. The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA/3/ and is therefore accepted by the validation team.</p>

		<p>However, the total size of such a CPA combined with a registered CPA of a PoA or a registered CDM project activity does not exceed the limits for small-scale CDM, then the CPA of a PoA can qualify to use simplified modalities and procedures for small-scale CDM</p> <p>The CME of the PoA to ensure the de-bundling check shall verify that there is no other activity by the same CPA implementing entity and also within a boundary of 1 km radius. The CME shall crosscheck with one or more of the following documents at the time CPA inclusion:</p> <ul style="list-style-type: none"> • Undertaking from the CPA implementing entity pertaining to above requirement • CPA land document with the site survey number • CPA geo co-ordinates. 	
	12- Conditions to provide an affirmation that funding from Annex I parties, if any, do not result in a diversion of official development assistance.	<p>The CME before the inclusion of the CPA under the PoA shall check the funding pattern adopted by the IE to implement the project activity. Further the CME shall take an undertaking from the IE that there shall be no funding from Annex I parties which is diverted into official development assistance.</p> <p>To verify the same, the CME shall check the CPA funding pattern adopted with the aid of one or more of the following documents:</p> <ul style="list-style-type: none"> • CA certificate • Loan sanction letter • Undertaking from the CPA project developer. 	<p>The eligibility criterion for inclusion of corresponding CPAs in the proposed CDM PoA are defined in accordance with the project standard for PoA, para 124(b)/1/. The ODA funding of the CPA is sufficiently verifiable at the CPA level using the documents listed by the CME.</p> <p>The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA/3/ and is therefore accepted by the validation team.</p>
	13- The condition to ensure that the CPA shall meet all the legal requirements (i.e. clearances / NOC's) from the national / local government bodies for the	<p>The CME of the PoA shall also ensure that the CPA willing to be part of the PoA is in-line with all the legal requirement i.e. the clearance / NOC achieved from the relevant local / state / national government bodies.</p> <p>This shall be cross verified with one or more of the following</p>	<p>The eligibility criterion for inclusion of corresponding CPAs in the proposed CDM PoA are defined in accordance with the project standard for PoA, para 124(b)/1/. The legal requirements of the CPA can be</p>

	successful implementation of the project activity.	documents at the time of CPA inclusion to the PoA: <ul style="list-style-type: none"> • NOC from the respective Pollution Control Board • Consent to Establishment • Consent to Operate • Environmental Clearance etc 	ensured to be met at the CPA level using the documents listed by the CME. The criteria was found to be in accordance with validation requirements related to renewal of PoA in the VVS for PoA/3/ and is therefore accepted by the validation team.
Findings	CAR#02 raised and resolved.		
Conclusion	The eligibility criteria for inclusion of a CPA under this CPA has been checked and found to be in line with applied methodology/8/, PS for PoA version 2.0/1/ and VVS for PoA version 2.0/3/.		

SECTION E. Internal quality control

The draft validation report for renewal of crediting period prepared by the validation team was reviewed by an independent technical review team to confirm if the internal procedures established and implemented by ESPL were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable CDM rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team were independent of the validation team.

The technical review process may accept or reject the validation opinion or raise additional findings in which case these must be resolved before requesting for registration. The technical review process is recorded in the internal documents of ESPL and the additional findings gets included in the report.

The final report approved by the technical reviewer is authorized by Managing Director and issued to PP and/or submitted for request for registration, as appropriate on behalf of ESPL.

SECTION F. Validation opinion

The validation of “National Solar Power Development Programme, India” for renewal of its crediting period was performed based on rules and requirements defined by UNFCCC for the CDM project activities.

It is demonstrated that the project is not a likely baseline scenario and the emission reductions attributable to the project are, hence, additional to any that would occur in the absence of the proposed CDM PoA. The project correctly applies the approved baseline and monitoring methodology AMS-I.D: Small-scale Methodology: Grid connected renewable electricity generation - Version 18.0 /8/ and is assessed against latest valid CDM PS, VVS and PS and/or other applicable CDM Decisions/Tools/Guidance/Forms.

ESPL has informed the project participants of the validation outcome through the draft validation report and final validation report. In case of negative validation outcome, the final validation report is only submitted to PP. The final validation report contains the information with regard to fulfilment of the requirements for validation, as appropriate.

ESPL applied the following validation process and methodology using a competent validation team;

- the desk review of documents and evidences submitted by the project participant in context of the reference CDM rules and guidelines issued by CDM EB,
- undertaking/conducting site visit, interview or interactions with the representative of the project participant,
- reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate and
- preparing a draft validation opinion based on the auditing findings and conclusions
- technical review of the draft validation opinion along with other documents as appropriate by an independent competent technical review team
- finalization of the validation opinion (this report)

The review of the PoA-DD, supporting documentation and subsequent follow-up actions (onsite visit and interviews) have provided ESPL with sufficient evidence to determine the fulfilment of stated criteria.

ESPL confirms the PoA “National Solar Power Development Programme, India” as described in the final PoA-DD/6/ version 01.1 dated 04/09/2019 does meet the stated criteria of CDM, meets host country criteria and has correctly applied the AMS-I.D: Small-scale Methodology: Grid connected renewable electricity

generation, Version 18.0/8/ Therefore, the project is being recommended to CDM EB for request for renewal of crediting period.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emission
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CM	Combined Margin
CME	Coordinating and Managing Entity
CO2	Carbon di oxide
CP	Crediting Period
CPA	Component of Programme of Activities
DNA	Designated National Authority
DR	Desk Review
DOE	Designated Operational Entity
EB	Executive Board
EPC	Engineering, Procurement and Construction
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
GW	Giga Watt
GWh	Giga Watt hour
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
kW	kilo Watt
kWh	kilo Watt hour
LoA	Letter of Approval/Authorization
LSC	Local Stakeholder Consultation Process
MoC	Modalities of Communication
MoV	Means of Validation
MP	Monitoring Plan
MW	Mega Watt
MWh	Mega Watt hour
ODA	Official Development Assistance
OM	Operating Margin
PCP	Project Cycle Procedure
PE	Project Emission
PLF	Plant Load Factor
PoA	Programme of Activities
PoA DD	Programme of Activities Design Document
PS	Project Standard
RCP	Renewal of Crediting Period
RFR	Request for Registration
tCO2e	tonnes of Carbon di Oxide equivalent
TPH	Tonnes Per Hour
UNFCCC	United Nations Framework Convention on Climate Change
V	Version
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Competence Statement			
Name	Shreya Garg		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., ACM0002, ACM0012		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Gautam	Date	01/03/2018

Name	Deepika Mahala		
Country	India		
Education	M. Sc. (Environmental Management), GGSIP University B.Sc. Hons. (Chemistry), Sri Venkateshwar College, DU		
Experience	3 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	ACM0002, AMS.I.D., AMS.I.A, AMS.III.AV, AMS.II.G		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2 & TA 3.1)		
Reviewed by	Shreya Garg	Date	14/09/2018
Approved by	Anshika Gupta	Date	14/09/2018

Competence Statement	
Name	Shifali Guleria
Education	M.Sc. (Environmental Studies and Resource Management), TERI University
Experience	1+ year
Field	Climate Change

Approved Roles			
Team Leader	NO		
Validator	YES		
Verifier	YES		
Methodology Expert	NO		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Reviewed by	Shreya Garg (Quality Manager)	Date	08/03/2019
Approved by	Anshika Gupta (Technical Manager)	Date	08/03/2019

Competence Statement			
Name	Ashok Gautam		
Country	India		
Education	M. Sc. (Environmental Sciences) M. Tech. (Energy & Environmental Management)		
Experience	16 Years +		
Field	Energy, Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.A., AMS-I.C., AMS-I.E, AMS-II.D., AMS-II.G., AMS-III.E., AMS-III.H., AMS-III.Q, AMS-III.Z., AMS-III.AV., AM0029, AM0025, AM0056, ACM0001, ACM0002, ACM0004, ACM0012, ACM0006, AM0018, ACM0009, AM0034, AMS.I.B		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1)		
Reviewed by	Shreya Garg	Date	25/01/2019
Approved by	Anshika Gupta	Date	25/01/2019

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	UNFCCC	Standard: CDM PS for PoA	Ver. 2	Others
2.	UNFCCC	Standard: CDM PCP for PoA	Ver. 2	Others
3.	UNFCCC	Standard: CDM VVS for PoA	Ver. 2	Others
4.	UNFCCC	Form: CDM-PoA-PDD-FORM	Ver. 09.0	Others
5.	EVI	Registered PoA-DD (for 1 st Crediting Period)	Version 1.2 dated 14/05/2012	CME
6.	EVI	Final PoA-DD <i>For 2nd Crediting Period</i>	Version 01.1 dated 04/09/2019	CME
7.	UNFCCC	Signed MoC Forms	Dated 07/11/2013	Others
8.	UNFCCC	Methodology:		Others

		AMS-I.D: Small-scale Methodology: Grid connected renewable electricity generation	Version 18	
9.	UNFCCC	PoA webpage: https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/L5W71UECNV3ZQGRAI4K96M0YTH2BSF/view	-	Others
10.	UNFCCC	Tool 03: Tool to calculate project or leakage CO2 emissions from fossil fuel combustion	version 3.0	Others
11.	UNFCCC	Tool 07: Tool to calculate the emission factor for an electricity system	Version 7.0	Others
12.	UNFCCC	Tool 11: "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period"	Version 3.0.1	Others
13.	UNFCCC	Tool 20 – Assessment of debundling for small scale project activities	Version 4.0	Others
14.	UNFCCC	Tool 21: Demonstration of additionality of small scale project activities	Version 12.0	Others
15.	Ministry of New and Renewable Energy, Government of India	Jawaharlal Nehru National Solar Mission: https://mnre.gov.in/sites/default/files/uploads/mission_document_JNN SM.pdf	-	Others
16.	India DNA	India's Intended Nationally Determined Contribution: https://www4.unfccc.int/sites/submissions/indc/Submission%20Pages/submissions.aspx	-	CME
17.	UNFCCC	Attachment A of Appendix B	Version 08, EB 63, Annex 24	Others
18.	Ministry of New and Renewable Energy, Government of India	Revision of cumulative targets under National Solar Mission from 20,000 MW by 2021-22 to 1,00,000 MW	17/06/2015	Others
19.	Power Grid Corporation of India	https://www.powergridindia.com/one-nation-one-grid	-	Others
20.	MoEF	Letter of approval (by DNA of India)	No. 4/2/2012-CCC dated 03/04/2012	Others

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

Table 1. CL from this validation

CL ID	01	Section no.	D.2.1	Date : 26/07/2019
Description of CL				
The applicability conditions discussed in section I.2 of PoA-DD have all been concluded to be met. However, since most of the applicability conditions of the methodology in this case cannot be determined to have been met at the PoA level, it's not clear how CME will ensure that the conditions are actually met at the CPA level. CME is requested to please clarify.				

Project participant response	Date : 31/07/2019
<i>Design of the PoA is such that only solar energy based generation units are included. By default, only those CPAs are included which meets applicable conditions. Hence "Position of the PoA vis-à-vis applicability conditions", is that it meets the applicability conditions by design. Validation of applicability conditions for CPA will be included in CPA DD. The applicability conditions are included as eligibility criteria for CPA inclusion in the table in section K.</i>	
Documentation provided by project participant	
CDM-POA-DD dated 31/07/2019	
DOE assessment	Date: 02/08/2019
All applicability conditions which are to be validated at CPA level are found to be covered under the eligibility criteria for CPA inclusion, which ensures that applicability conditions will be validated at CPA-level. Therefore, the finding is closed.	

CL ID	04	Section no.	D.2.4	Date : 26/07/2019
Description of CL				
In section I.6.3 of PoA-DD under project emissions, calculation of project emissions has also been accounted for, as a part of hybrid project. However, the parameters required for calculation of project emissions have not been listed under ex-ante or monitored parameters. It's not clear how the values of these parameters will be determined.				
Project participant response				Date : 31/07/1973
<i>Parameters are now listed under monitored parameter</i>				
Documentation provided by project participant				
CDM-POA-DD dated 31/07/2019				
DOE assessment				Date: 02/08/2019
Parameters linked to project emissions were found to be appropriately added in the revised PoA-DD. Therefore, the finding is closed.				

CL ID	05	Section no.	D.2.3, D.2.4	Date : 02/09/2019
Description of CL				
<ol style="list-style-type: none"> 1. CME is requested to justify how the information in tables in section I.7.1 are kept in line with the methodology and prescribed tools. (Please see the comments in PoA-DD in section I.7.1). 2. In section I.6.1 of the PoA-DD, the contribution of must run power plants for 5 most recent years has been determined to justify the selection of Simple OM method. However, since the values for Emission factor for each CPA have been proposed to be determined at the time of CPA inclusions, it's not clear how CME has fixed the values from the CEA database version14 throughout this PoA renewal period for all CPA inclusions. 3. In section I.6.3 of PoA-DD, in calculation of Project Emissions, The CME has selected the option B for calculating CO2 emission coefficient (COEF i, y). Although, it is consistent with the approach in the registered PoA DD, but is not in line with the applied methodology, which prescribes preference for Option A. Therefore, CME is requested to justify why option B was chosen. 4. As per the PoA description, CME is requested to incorporate the baseline calculation procedures as per Section 5.5.1.1 of applied methodology. 				
Project participant response				Date : 04/09/2019
<ol style="list-style-type: none"> 1. Tables are updated inline with the methodology and prescribed tools in section I.7.1 2. The CME has chosen to apply Simple OM for the CPA(s). The conditions to apply Simple OM will be ascertained at the time of CPA inclusion. In case, conditions for Simple OM are not fulfilled, other methods according to the "TOOL7: Tool to calculate the emission factor for an electricity system" will be considered at the time of CPA inclusion. Section I.6.1 updated accordingly. 3. Considering the industry practice of keeping the records of NCV of fuel in India, the CME has selected the option B. Section I.6.3 updated accordingly. 4. The baseline calculation procedures as per Section 5.5.1.1 of applied methodology are incorporated. 				
Documentation provided by project participant				
CDM-POA-DD dated 04/09/2019				
DOE assessment				Date: 05/09/2019

1. The parameter tables listed in monitoring plan were found to be revised and updated in line with the applied methodology. Therefore, the finding is closed.
2. Section I.6.1 was found to be appropriately updated in line with the applied methodology and tool. The emission factor values will be determined at the time of CPA inclusion. Therefore, the finding is closed.
- 3.
4. Baseline calculation procedures were found to be appropriately incorporated in the PoA-DD. Therefore, the finding is closed.

Table 2. CAR from this validation

CAR ID	02	Section no.	D.1.1, D.2.5	Date : 24/07/2019
Description of CAR				
<ol style="list-style-type: none"> 1. The latest version available of form CDM-PoA-DD-FORM is version 9.0. However, the PoA-DD provided to DOE is in version 8.1. PP is requested to update PoA-DD to the latest version of template available. 2. The values of contribution of must run power plants of five most recent years, which has been provided in form of a table in section I.6.1 of PoA-DD, the source of the values could not be determined. CME is requested to provide the same. 3. "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" was found to have been used and referred in the PoA-DD. However, it was found missing from section I.1. CME is requested to mention the tool in said section. 4. Some editorial errors were observed during the assessment. CME is requested to address these errors which have marked using comments by the assessment team in the PoA-DD. 				
Project participant response				Date : 31/07/2019
<ol style="list-style-type: none"> 1. CDM-PoA-DD updated to form version 9.0. 2. Reference link updated in footnote 22. 3. Tools have been mentioned in Section I.1. Highlighted errors are rectified.				
Documentation provided by project participant				
CDM-POA-DD dated 31/07/2019, CO2Baseline Database from Central Electricity Authority				
DOE assessment				Date: 02/08/2019
<ol style="list-style-type: none"> 1. The template was found to appropriately updated to latest version. However, the eligibility criteria listed under Section K of the PoA DD was not found inline to the PS for PoA version 2. The minimum requirements (para124 c, h, k, l, m, n) provided under the PS for PoA could not be found. Open 2. The updated link provides the source for values of contribution of must run power plants of five most recent years. The values were found to be consistent with the PoA-DD. 3. The revision was found to be appropriate. 4. All errors were found to be appropriately addressed. 				
Project participant response				Date : 15/08/2019
Eligibility criteria updated inline with PS for PoA version 2 and as per the Minimum requirements provided under PS for PoA version 2.				
Documentation provided by project participant				
CDM-POA-DD dated 08/08/2019				
DOE assessment				Date: 19/08/2019
The minimum requirements were found to be appropriately listed in the revised PoA-DD in line with para 124 of PS for PoA. Therefore, the finding is closed.				

CAR ID	03	Section no.	D.2.2	Date : 24/07/2019
Description of CAR				

According to para 281 of PS for PoA (version 02), CME shall describe how to demonstrate the validity of the original baseline or how to update it for each of the corresponding CPAs. This demonstration was found to be missing from the PoA-DD provided to the validation team. CME is requested to demonstrate the validity of baseline scenario using the tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" (Version 03.0.1, EB 66, Annex 47).	
Project participant response	Date : 31/07/1973
<i>Assessment of the validity of the original/current baseline based on TOOL11 is added.</i>	
Documentation provided by project participant	
CDM-POA-DD dated 31/07/2019	
DOE assessment	Date: 02/08/2019
Assessment of the validity of original baseline has been now provided in the revised PoA-DD however from the assessment included under section I.5 of the PoA DD the assessment of the impact of national and/or sectoral policies and circumstances existing at the time of requesting renewal of the PoA period could not be found in the PoA DD. Open	
Project participant response	Date : 15/08/2019
<i>Assessment updated under section I.5, "Step 1.2 – Assess the impact of circumstances."</i>	
Documentation provided by project participant	
CDM-POA-DD dated 08/08/2019	
DOE assessment	Date: 19/08/2019
The updated assessment in section I.5 was found to be appropriately stated and has therefore, been accepted by the validation team. The finding is closed.	

Table 3. FAR from this validation

FAR ID	xx	Section no.	xx	Date: DD/MM/YYYY
Description of FAR				
There is no FAR from this validation.				
Project participant response				Date: DD/MM/YYYY
xx				
Documentation provided by project participant				
xx				
DOE assessment				Date: DD/MM/YYYY
xx				

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Document information

Version	Date	Description
02.0	31 May 2019	Revision to: <ul style="list-style-type: none"> Ensure consistency with version 02.0 of the "CDM validation and verification standard for programmes of activities" (CDM-EB93-A08-STAN) and version 02.0 of the "CDM project cycle procedure for programmes of activities" (CDM-EB93-A09-PROC); Make editorial improvements.
01.0	29 December 2017	Initial publication.
Decision Class: Regulatory		
Document Type: Form		
Business Function: Renewal of crediting period		
Keywords: crediting period, programme of activities, validation report		